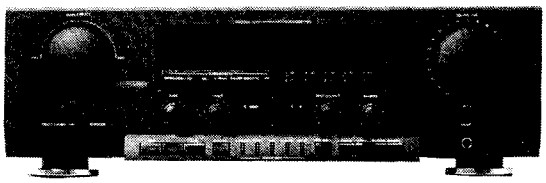
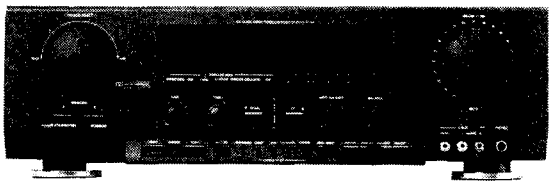
Receiver 70FR930/00S/01S

70FR940/00S/13S
FR930PBK01
FR940PBK01

Service
Service
Service





Service Manual

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PHILIPS

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PCS 67 133

SPECIFICATION

General		Nominal value	Typical value
Mains voltage		: 220V ~ (/00S), 120/220/240V ~ (/01S), : 110/220V ~ (/13S) 120V ~ (BK01)	: 220V ~ (/00S), 120/220/240V ~ (/01S), : 110/220V ~ (/13S) 120V ~ (BK01)
Mains frequency		: 50/60 Hz (/00S/01S), 60 Hz (/13S, BK01)	: 50/60 Hz (/00S/01S), 60 Hz (/13S, BK01)
Power consumption		: 380W (FR930), 460W (FR940)	: 380W (FR930), 460W (FR940)
Dimensions (WxHxD)		: 435 x 124 x 300 mm	: 435 x 124 x 300 mm
Weight		: 8.6 kg (FR930), 9.4 kg (FR940)	: 8.6 kg (FR930), 9.4 kg (FR940)
Tuner: FM section (at 75Ω)			
Tuning range		: 87.5 MHz to 108.0 MHz	: 87.5 MHz to 108.0 MHz
Aerial inputs		: 75Ω coaxial	: 75Ω coaxial
Sensitivity	mono	: 2.5 μV (19.2 dBf) : 3% Distortion (75 kHz dev.)	: 1.3 μV (13.5 dBf) : 3% Distortion (75 kHz dev.)
Selectivity		: 50 dB at ±400 kHz bandwidth	: 60 dB at ±400 kHz bandwidth
Frequency response	30 Hz – 15 kHz	: +1.0, –4.0 dB	: +0.5, –2.0 dB
Suppression	IF-AM	: 65 dB –45 dB	: 70 dB –55 dB
	pilot tone	: 40 dB	: 50 dB
	image frequency	: 40 dB	: 50 dB
Channel separation		: 30 dB 1 kHz	: 45 dB 1 kHz
Distortion T.H.D	mono	: 0.5%	: 0.2%
	stereo	: 1.0%	: 0.4%
Signal/noise ratio	mono	: 71 dB	: 76 dB
	stereo	: 63 dB	: 68 dB
Auto-stop threshold	(Muting)	: 23.3 – 32.0 dBf (4 – 11 μV)	: 27.2 dBf (6.3 μV)
Output		: 650 –1300 mV/2.0 kΩ	: 940 mV/2.0 kΩ
Tuner: AM section			
Wave ranges		: 520 kHz to 1710 kHz	: 520 kHz to 1710 kHz
Sensitivity	(Loop antenna)	: 1000 μV/m 10% Distortion	: 600 μV/m 10% Distortion
Selectivity	(Loop antenna)	: 20 dB at ±10 kHz bandwidth	: 30 dB at ±10 kHz bandwidth
Suppression	IF (Loop antenna)	: 50 dB	: 60 dB
	image frequency (Loop antenna)	: 35 dB	: 40 dB
Output	(Loop antenna)	: 130 – 260 mV	: 190 mV

Note
- Test methods: IHF

SPECIFICATION

Audio

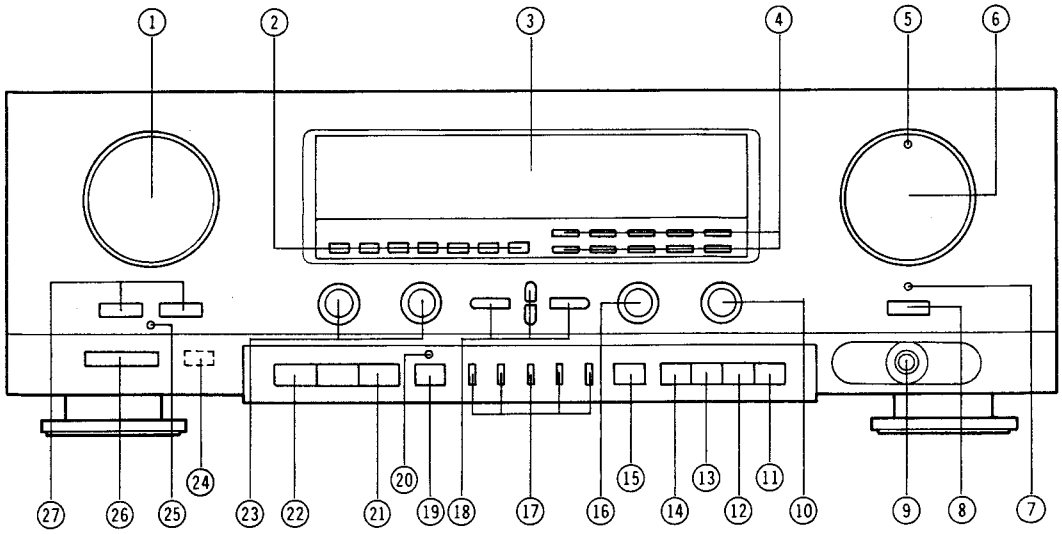
Output power (Front/Rear/Center)	: 60W (8Ω)/20W (4+4Ω)/20W (8Ω) (FR930) : 100W (8Ω)/20W (4+4Ω)/20W (8Ω) (FR940)	: 65W (8Ω)/22W (4+4Ω)/22W (8Ω) (FR930) : 105W (8Ω)/22W (4+4Ω)/22W (8Ω) (FR940)
Distortion		
T.H.D. (Front)	: ⩽0.09% at 20 Hz –20 kHz	: ⩽0.05% at 20 Hz –20 kHz
Intermodulation (Front)	: ⩽0.09% at 60/7000 Hz 4:1	: ⩽0.03% at 60/7000 Hz 4:1
Frequency characteristic		
Phono input / tone control	: from 20 Hz – 20 kHz ±2 dB (RIAA)	: from 20 Hz – 20 kHz ±0.5 dB (RIAA)
Linear inputs / neutral	: from 20 Hz – 20 kHz ±2 dB	: from 10 Hz – 30 kHz ±2 dB
Bass control	: at 100 Hz +10 dB to –10 dB ±2 dB	: at 100 Hz +10 dB to –10 dB
Treble control	: at 10 kHz +10 dB to –10 dB ±2 dB	: at 10 kHz +10 dB to –10 dB
Acoustic bass boost (80 Hz/150 Hz/250 Hz)	: 10 dB/10 dB/10 dB ±2 dB	: 10 dB/10 dB/10 dB
Signal/noise ratio weighted (A-curve)		
Phono input	: for 1W output ⩾ 70 dB	: for 1W output ⩾ 75 dB
Linear inputs	: for 1W output ⩾ 78 dB	: for 1W output ⩾ 82 dB
Channel separation	: at 1000 Hz ⩾ 40 dB : at 100 Hz – 10 kHz ⩾ 30 dB	: at 1000 Hz ⩾ 45 dB : at 100 Hz –10 kHz ⩾ 35 dB
Input sensitivity/Input impedance		
Audio		
Phono	: 2.1 – 3.1 mV/47 kΩ	: 2.5 mV/47 kΩ
CD/LD/TV	: 120 – 190 mV/20 kΩ	: 150 mV/25 kΩ
Tape/VCR	: 120 – 190 mV/20 kΩ	: 150 mV/25 kΩ
Output level/Output impedance		
Tape (Audio)	: ⩾ 250 mV/300 – 500Ω (Phone 5.0 mV 1 kHz input)	: 300 mV/400Ω (Phono 5.0 mV 1 kHz input)

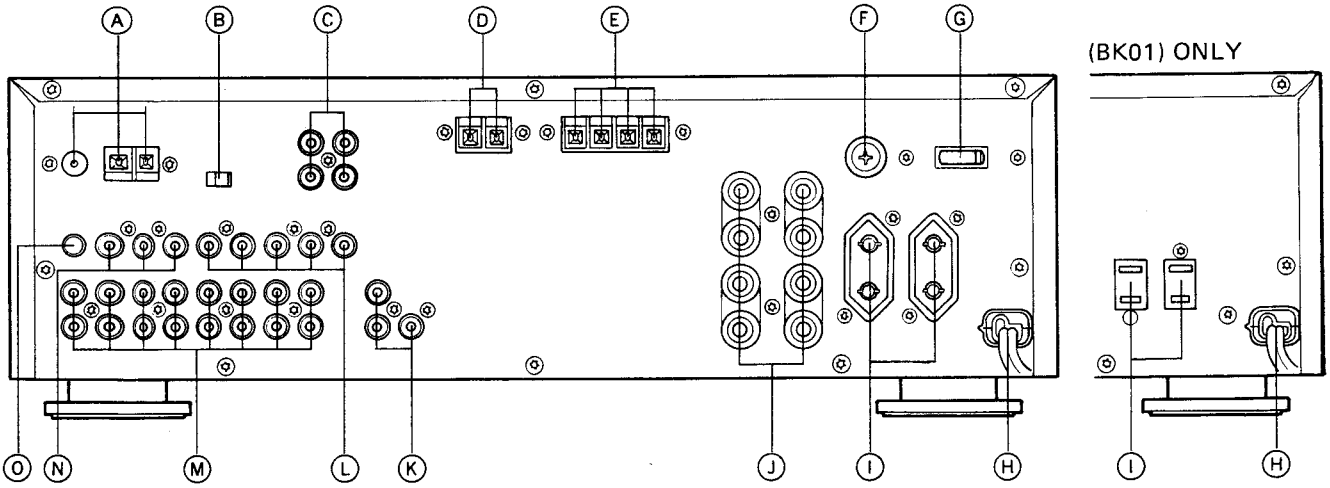
Video

Frequency characteristic	: from 10 Hz – 6 MHz –3 dB	: from 10 Hz – 10 MHz –3 dB
Signal/noise ratio weighted (A-curve)		
Video inputs	: 70 dB	: 75 dB
Crosstalk 3.58 MHz	: 35 dB	: 38 dB
Input sensitivity		
Video inputs	: 1.8 – 2.2 Vp-p	: 2.0 Vp-p
Output level/Output impedance		
Video outputs	: 0.9 – 1.1 Vp-p/60 – 85Ω	: 1.0 Vp-p/75Ω

Note
– Test methods: IHF

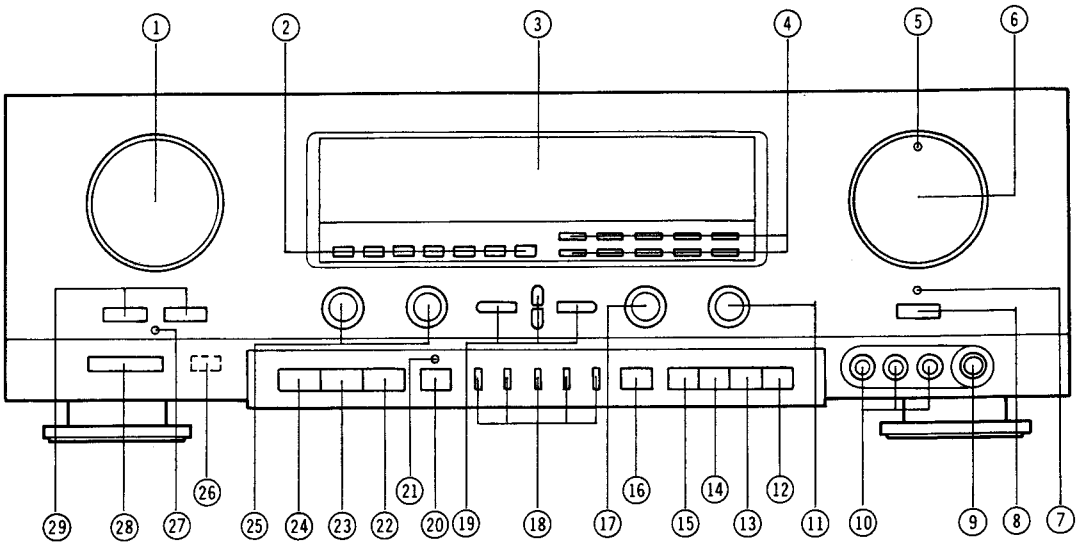
CONNECTIONS AND CONTROLS (FR930)

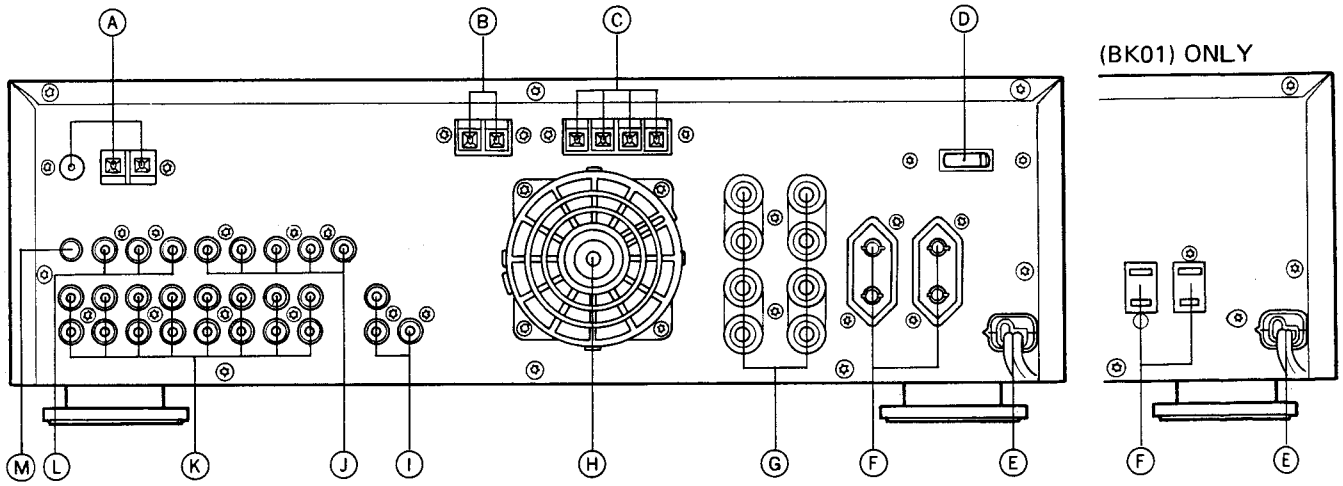




1	Source selector	S437	22	Video switch	S419
2	Surround mode switches (/01S/BK01 only)	S401~S407	23	Tone controls	R519, R520
24	I.R. receiver	Q406			
3	FTD display	V401	25	Standby indicator	D404
4	Tuner preset switches	S408~S417	26	Power switch (/00S/01S)	S321
5	Volume indicator (/01S/BK01 only)	D651		(BK01)	S320
27	Speaker switch	S251			
6	Volume control	R662			
7	Mute indicator	D405	A	Antenna terminal	J101
8	Mute switch	S418	B	Scan step/De-emphasis switch (/01S only)	S101
9	Headphones socket	J586			
10	Balance control	R532	C	Processor input/output (/00S only)	J104
11	Memory switch	S436	D	Center speaker terminal (/01S/BK01 only)	J309
12	FM mode switch	S435			
13	Display switch	S434	E	Surround speaker terminal (/01S/BK01 only)	J310
14	FM/AM switch	S433			
15	Frequency direct switch	S432	F	Fuse holder (/01S only)	J001
16	Input balance control (/01S/BK01 only)	R351	G	Voltage selector (/01S only)	S322
H	Mains cord	W001			
	Source direct switch (/00S only)	S701	I	Mains outlet (/00S/01S)	J326, J327
17	Cursor mode switches			(BK01)	J320
	(/01S/BK01)	S423~S427	J	Front speaker terminal	J300
	(/00S)	S424~S426	K	System control jacks	J553, J554
18	Cursor switches	S428~S431	L	Video input/output	J570, J571
19	Auto selector switch	S422	M	Analog audio input/output	J551, J552
20	Auto selector indicator	D406	N	Digital input/output (/00S only)	J592
21	Sleep switch	S421	O	Ground terminal	J053

CONNECTIONS AND CONTROLS (FR940)





1	Source selector	S437
2	Surround mode switches	S401~S407
3	FTD display	V401
4	Tuner preset switches	S408~S417
5	Volume indicator (/13S, BK01 only)	D651
6	Volume control	R662
7	Mute indicator	D405
8	Mute switch	S418
9	Headphones socket	J581
10	Video-Aux input	J582~J584
11	Balance control	R532
12	Memory switch	S436
13	FM mode switch	S435
14	Display switch	S434
15	FM/AM switch	S433
16	Frequency direct switch	S432
17	Input balance control	R351
18	Cursor mode switches	S423~S427
19	Cursor switches	S428~S431
20	Auto selector switch	S422
21	Auto selector indicator	D406
22	Sleep switch	S421
23	Dubbing switch	S420
24	Video switch	S419
25	Tone controls	R519, R520
26	I.R. receiver	Q406
27	Standby indicator	D404
28	Power switch (/00S)	S321
	(/13S, BK01)	S320
29	Speaker switch	S251

A	Antenna terminal	J101
B	Center speaker terminal	J309
C	Surround speaker terminal	J310
D	Voltage selector (/13S only)	S322
E	Mains cord	W001
F	Mains outlet (/00S)	J326, J327
	(/13S)	J021, J022
	(BK01)	J320
G	Front speaker terminal	J300
H	Fan motor	910G
I	System control jacks	J553, J554
J	Video input/output	J570, J571
K	Analog audio input/output	J551, J552
L	Digital audio input/output	J592
M	Ground terminal	J053

(BG)

Service Routine

To enter the service routine, press the POWER switch to ON while press and hold the MUTE and MEMORY switches simultaneously. The display shows characters "·SERVICE··" for 2 seconds, then shows "TUNER-OK" or "TUNER-NG" for 2 seconds.

TUNER-OK: The data communication between the PLL IC (Q150) and microprocessor (Q401) is normal.

TUNER-NG: The data communication between the PLL IC (Q150) and microprocessor (Q401) is abnormal. Check the data line between them.

In case of "TUNER-NG", the characters blink at a cycle of 1 Hz. The blinking can be stopped with the FM/AM switch. Other switches are invalid during blinking.

After the "TUNER-OK" or "TUNER-NG" display, normal operation starts. However, the source indicator on the display keeps on blinking at 1 Hz while the unit in the service routine.

– Tracking point memory mode

When the MUTE and MEMORY switches are pressed simultaneously while the unit is in the service routine, the tracking point frequencies as shown below are written in the memory.

- Tracking point frequencies

Pre Set Nbr.	1–3	4	5	6	7	8	9	10–20	21–30
/00S/01S /13S	87.5	90.0	98.0	106.0	603	999	1404	87.5	522
BK01					600	1000	1400	87.5	530
	FM (MHz)				AM (KHz)			FM (MHz)	AM (KHz)

In the service routine, the RAM can be cleared by pressing the POWER switch to OFF while pressing and holding the 0/+– and MEMORY switches simultaneously.

To quit the service routine, press the POWER switch to OFF.

(F)

Routine d'entretien

Pour utiliser la routine d'entretien, appuyer sur la touche POWER tout en appuyant et maintenant la pression simultanément sur les touches MUTE et MEMORY pour mettre l'appareil en service. L'afficheur indique le mot "·SERVICE··" pendant 2 secondes puis soit "TUNER-OK", soit "TUNER-NG" pendant 2 secondes.

TUNER-OK: La transmission d.informations entre le CI PLL (Q150) et le microprocesseur (Q401) est normale.

TUNER-NG: La transmission d'informations entre le CI PLL (Q150) et le microprocesseur (Q401) est anormale. Vérifier la ligne de transmission.

Dans le cas de "TUNER-NG", les caractères clignotent à la fréquence de 1 Hz. Il est possible d'arrêter le clignotement au moyen de la touche FM/AM. Les autres touches sont sans effet pendant le clignotement.

Après l'affichage de "TUNER-OK" ou de "TUNER-NG", le fonctionnement normal commence. Toutefois, le témoin de la source, placé sur l'afficheur, continue de clignoter à la fréquence de 1 Hz aussi longtemps que l'appareil est en routine d'entretien.

– Mémoire du point de poursuite

Lorsque l'on appuie simultanément sur les touches MUTE et MEMORY alors que l'appareil est en routine d'entretien, les fréquences du point de poursuite indiquées ci-dessous sont écrites en mémoire.

- Fréquences du point de poursuite

Numéro de présélection	1–3	4	5	6	7	8	9	10–20	21–30
/00S/01S/13S	87,5	90,0	98,0	106,0	603	999	1404	87,5	522
BK01					600	1000	1400	87,5	530
	FM (MHz)				AM (kHz)			FM (MHz)	AM (kHz)

Pendant la routine d'entretien, la mémoire vive peut être effacée en appuyant sur la touche POWER pour mettre l'appareil en service tout en appuyant et maintenant la pression simultanément sur les touches 0/+– et MEMORY.

Pour abandonner la routine d'entretien, appuyer sur la touche POWER pour mettre l'appareil hors service.

(NL)

Onderhoud en kontrole

Druk de MUTE en MEMORY schakelaars in en druk tegelijkertijd de POWER schakelaar op ON om de onderhoudskontrolefunktie te aktiveren."·SERVICE··" wordt 2 sekonden op het display getoond. Hierna verschijnt "TUNER-OK" of "TUNER-NG" gedurende 2 sekonden op het display.

TUNER-OK: Data-uitwisseling tussen de PLL IC (Q150) en mikroprocessor (Q401) is in orde.

TUNER-NG: Data-uitwisseling tussen de PLL IC (Q150) en mikroprocessor (Q401) is niet in orde. Kontroleer het pad van de data.

De karakters knipperen met een interval van 1 Hz indien "TUNER-NG" op het display wordt getoond. Het knipperen kan worden gestopt door op de FM/AM schakelaar te drukken. Overige schakelaars kunnen niet worden bediend terwijl de karakters knipperen.

Normale bediening start nadat "TUNER-OK" of "TUNER-NG" op het display werd getoond. De bronindikator blijft echter met een interval van 1 Hz op het display knipperen zolang de onderhoudskontrolefunktie is ingeschakeld.

– Geheugenfunktie voor sporingspunt

De hierna beschreven sporingspuntfrekwenties worden in het geheugen vastgelegd indien u tegelijkertijd op de MUTE en MEMORY schakelaars drukt terwijl de onderhoudskontrolefunktie is geaktiveerd.

- Sporingspuntfrekwenties

Voorkeuze-nummer	1–3	4	5	6	7	8	9	10–20	21–30
/00S/01S/13S	87,5	90,0	98,0	106,0	603	999	1404	87,5	522
BK01					600	1000	1400	87,5	530
	FM (MHz)				AM (kHz)			FM (MHz)	AM (kHz)

De RAM kan worden gewist door tijdens de onderhoudskontrolefunktie tegelijkertijd de 0/+– en MEMORY schakelaars in te drukken terwijl u de POWER schakelaar op OFF drukt.

Druk de POWER schakelaar op OFF om de onderhoudskontrolefunktie te annuleren.

(D)

Wartungsroutine

Zum Aktivieren der Wartungsroutine den POWER-Schalter auf ON drücken und dann die Schalter MUTE und MEMORY gleichzeitig gedrückt halten. Im Display erscheint der Schriftzug "·SERVICE··" für 2 Sekunden, danach "TUNER-OK" oder "TUNER-NG" für 2 Sekunden.

TUNER-OK: Die Datenkommunikation zwischen dem PLL IC (Q150) und dem Mikroprozessor (Q401) ist normal.

TUNER-NG: Die Datenkommunikation zwischen dem PLL IC (Q150) und dem Mikroprozessor (Q401) ist nicht normal. Die zwischenliegende Datenleitung überprüfen.

Im Fall von "TUNER-NG" blinken die Zeichen mit einer Frequenz von 1 Hz. Das Blinken kann mit dem FM/AM-Schalter gestoppt werden. Andere Schalter funktionieren während des Blinkens nicht.

Nach der Anzeige "TUNER-OK" der "TUNER-NG" beginnt der normale Betrieb. Die Quellen-Anzeige im Display blinkt jedoch weiterhin mit einer Frequenz von 1 Hz, solange das Gerät sich in der Wartungsroutine befindet.

– Spurlagenpunkt-Speichermodus

Wenn die Schalter MUTE und MEMORY gleichzeitig gedrückt werden, während das Gerät sich in der Wartungsroutine befindet, werden die nachstehend angeführten Spurlagenpunkt-Frequenzen in den Speicher geschrieben.

- Spurlagenpunkt-Frequenzen

Speicher-nummer	1–3	4	5	6	7	8	9	10–20	21–30
/00S/01S /13S	87,5	90,0	98,0	106,0	603	999	1404	87,5	522
BK01					600	1000	1400	87,5	530
	UKW (MHz)				MW (kHz)			UKW (MHz)	MW (kHz)

Inder Wartungsroutine kann der RAM-Speicher gelöscht werden, indem der POWER-Schalter auf OFF gedrückt wird, während die Schalter 0/+– und MEMORY gleichzeitig gedrückt gehalten werden.

Zum Verlassen der Wartungsroutine den POWER-Schalter auf OFF drücken.

(I)

Routine di assistenza

Per impostare il modo della routine di assistenza, premere il tasto POWER portandolo su ON mentre si tengono premuti contemporaneamente i tasti MUTE e MEMORY. Il display visualizza il messaggio "·SERVICE··" per 2 secondi, quindi mostra quello "TUNER-OK" o quello "TUNER-NG" per altri 2 secondi.

TUNER-OK: La comunicazione di dati fra il circuito integrato PLL IC (Q150) ed il microprocessore (Q401) è normale.

TUNER-NG: La comunicazione di dati fra il circuito integrato PLL IC (Q150) ed il microprocessore (Q401) non è normale. Controllare la linea di invio dati fra di essai.

Nel caso di "TUNER-NG", i caratteri lampeggiano in un ciclo di 1 kHz. Il lampeggiare può essere fatto terminare con l'interruttore FM/AM. Gli altri comandi non funzionano mentre il lampeggiare è in corso.

Dopo che il display "TUNER-OK" o quello "TUNER-NG" è comparso, il funzionamento normale ha inizio. Tuttavia, l'indicatore della sorgente di segnale attivata continua a lampeggiare ad 1 kHz sintanto che il modo della routine di servizio è impostato.

– Modo di memoria del punto di allineamento

Se i tasti MUTE e MEMORY vengono premuti contemporaneamente mentre l'unità si trova nel modo di routine di assistenza, le frequenze del punto di allineamento mostrate di seguito vengono scritte in memoria.

- Frequenze del punto di allineamento

Numero di preselezione	1–3	4	5	6	7	8	9	10–20	21–30
/00S/01S/13S	87,5	90,0	98,0	106,0	603	999	1404	87,5	522
BK01					600	1000	1400	87,5	530
	FM (MHz)				AM (kHz)			FM (MHz)	AM (kHz)

Nella routine di assistenza, il contenuto della RAM può venire cancellato premendo il tasto POWER su OFF mentre si tengono premuti contemporaneamente i tasti 0/+ e MEMORY.

Per abbandonare la routine di assistenza, premere il tasto POWER portandolo su OFF.

ADJUSTMENTS

Audio Section

Idling Current

SK... SWITCH	SIGNAL	TO	VOLUME	ADJUST	OSCILLOSCOPE	D.C. METER INDICATOR
Power switch OFF (S321: /00S/01S) (S320: /13S, BK01)				R263, R264 Preset in full C.C.W. position		
Power switch ON (S321: /00S/01S) (S320: /13S, BK01)			Min.	Lch R263		Lch TP1 (+), TP3 (–) (Both side of R271) DC 7.2 mV (20 mA)
				Rch R264		Rch TP2 (+), TP4 (–) (Both side of R272) DC 7.2 mV (20 mA)

C.C.W.: Counterclockwise

(GB) Notes:

- In 5 minutes after the power has been switched ON, adjust to read 7.2 mV DC.
- If the heat-sink temperature is higher than the ambient temperature, switch the power OFF, and leave the unit until the heat-sink temperature falls equal to or below the ambient temperature before proceeding to the idling current adjustment.

(F) Remarques:

- Dans 5 minutes après la mise en circuit, régler pour lire 7,2 mV CC.
- Si la température de la plaque de refroidissement est supérieure à la température ambiante, couper l'alimentation et laisser l'appareil jusqu'à ce que la température de la plaque de refroidissement soit égale ou inférieure à la température ambiante avant de passer à l'ajustement du courant déwatté.

(NL) Opmerkingen:

- Stel binnen 5 minuten nadat de spanning is aangeschakeld (ON) op 7,2 mV DC in.
- Als de temperatuur van de warmteput hoger is dan de omringende temperatuur, schakel dan de spanning uit totdat de temperatuur van de warmteput gelijk is aan of lager is dan de omringende temperatuur alvorens over te gaan tot aanpassen op de stationaire stroom.

(D) Anmerkungen:

- 5 Minuten nach dem Einschalten der Spannungsversorgung die Anzeige auf 7,2 mV Gleichstrom einstellen.
- Wenn die Temperatur des Kühlkörpers höher ist als die Umgebungstemperatur, die Spannungsversorgung ausschalten und warten, bis die Temperatur des Kühlkörpers gleich der oder niedriger als die Umgebungstemperatur wird, bevor die Ruhestrom-Einstellung durchgeführt wird.

(I) Note:

- Regolare in modo da ottenere 7,2 mV di corrente continua dopo aver atteso 5 minuti dopo l'accensione.
- Se la temperatura degli organi di dispersione del calore è superiore a quella dell'ambiente, spegnete l'unità e lasciatela raffreddare sino a che la sua temperature non diviene uguale o inferiore a quella ambiente, quindi procedete con la regolazione della corrente a riposo.

Tuner Section

- Inner adjustment of the FM front end pack (A101) of this unit is difficult. (IF, RF, OSC)
- Inductance of the AM OSC coil (L102) is preset. Therefore, please do not turn the core of this coil.
- Refer to "Tracking point memory mode" in the Service Routine.

FM-Distortion

SK... WAVE RANGE SWITCH	SIGNAL	TO	DISPLAY TUNE IN	DETUNE	ADJUST	OSCILLOSCOPE	INDICATOR
FM (S433)	98 MHz Mod. 1 kHz Δf 40 kHz (/00S/01S) Δf 75 kHz (/13S, BK01) (Mono) Output 500 μV (65 dBf)	J101			L105		J551 (Tape out) Distortion Min.
	98 MHz Mod. 1 kHz Δf L+R 40 kHz Pilot 6 kHz (/00S/01S) Δf L+R 67.5 kHz Pilot 6.75 kHz (/13S, BK01) Output 500 μV (65 dBf)				A101-IFT (Front end IFT)		

Stereo Separation

FM (S433)	98 MHz Mod. 1 kHz Δf L+R 40 kHz Pilot 6 kHz (/00S/01S) Δf L+R 67.5 kHz Pilot 6.75 kHz (/13S, BK01) Output 500 μV (65 dBf)	J101			R119		J551 (Tape out) Separation Max.

Muting Level

FM (S433) FM mode switch (S435) (Mono indicator OFF)	98 MHz Mod. 1 kHz Δf 75 kHz Output 6.3 μV (27.2 dBf)	J101			R114		J551 (Tape out) 1

AM-IF

AM (S433)	999 kHz (/00S/01S/13S) 1000 kHz (BK01) Mod. 400 Hz 30% Low Output (300 μV/m)	Loop Ant.			L104		J551 (Tape out) Output Max.

AM-RF

SK... WAVE RANGE SWITCH	SIGNAL	TO	DISPLAY TUNE IN	DETUNE	ADJUST	OSCILLOSCOPE	INDICATOR
AM (S433)	1404 kHz (/00S/01S/13S) 1400 kHz (BK01)	Loop Ant.			L101		J551 (Tape out) Output Max.
	603 kHz (/00S/01S/13S) 600 kHz (BK01)				C101		

AM Auto Stop

AM (S433)	999 kHz (/00S/01S/13S) 1000 kHz (BK01) Mod. 400 Hz 30% Output 1000 µV/m	Loop Ant.			R103		J551 (Tape out) [2]

(GB) Notes:

[1] By turning R114, clear once the output waveform the J551, and then adjust it by turning R114 a little so that the waveform appears again.
[2] Adjust R103 so that the "TUNED" indicator of the FL display tubes lights up.

(F) Remarques:

[1] En tournant R114, effacer la forme d'onde de sortie de J551 dans un premier temps, puis ajuster celle-ci en tournant doucement R114 de sorte que la forme d'onde apparaisse à nouveau.
[2] Ajuster R103 pour que l'indicateur "TUNED" du tube d'affichage fluorescent s'allume.

(NL) Opmerkingen:

[1] Draai R114 rond om de uitgangsgolfvorm van de J551 eenmaal te doorlopen en stel daarna af door R114 een weinig te draaien zodat de golfvorm weer verschijnt.
[2] Stel R103 zodanig af dat de "TUNED" indicator van de FL-display oplicht.

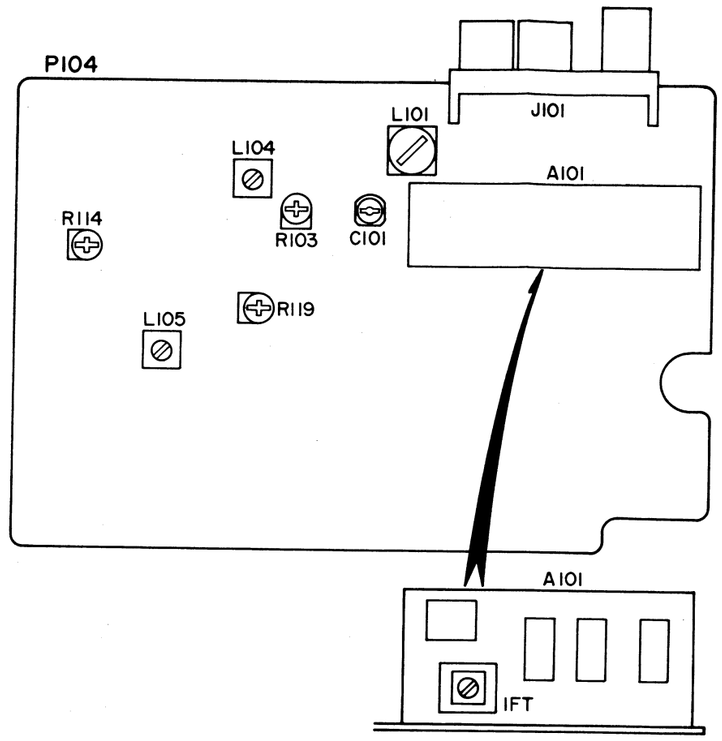
(D) Anmerkungen:

[1] Die Ausgangswellenform von J551 durch Drehen von R114 löschen und dann durch geringfügiges Drehen von R114 so einstellen, daß die Wellenform wieder erscheint.
[2] R103 so einstellen, daß die Anzeige "TUNED" auf dem Fluoreszenz-Display leuchtet.

(I) Note:

[1] Ruotando R114 cancellare la forma d'onda in uscita di J551 e quindi regolaria ruotando leggermente R114 in modo che la forma d'onda ricompaia.
[2] Regolare R103 in modo che l'indicatore "TUNED" del display FL si illumini.

Tuner Adjustment Positions



Carbon film 0.125 W or 0.2 W	70°C	5%	
Carbon film 0.25 W or 0.33 W	70°C	5%	
Metal film 0.25 W or 0.33 W	70°C	5%	
Carbon film 0.5 W	70°C	5%	
Carbon film 0.67 W	70°C	5%	
Carbon film 1 W or 1.15 W	70°C	5%	
(C) Chip component			

Ceramic plate Tuning ⩽ 120 pF NP.0		2%
Others		−20/+80%
Polyester flat foil		10%
Metalized polyester flat film		10%
Polyester flat foil small size (Mylar)		10%
Polysterene film/foil		1%
Tubular ceramic		
Miniature single		
Subminiature tantalum		± 20%

*a = 2.5 V
b = 3.15 V or 4 V
c = 6.3 V
d = 10 V
e = 16 V
f = 25 V
g = 40 V
h = 63 V
j = 100 V
l = 125 V
m = 150 V
n = 160 V
q = 200 V
r = 250 V
s = 300 V
t = 350 V
u = 400 V
v = 500 V
w = 630 V
x = 1000 V
A = 1.6 V
B = 6 V
C = 12 V
D = 15 V
E = 20 V
F = 35 V
G = 50 V
H = 75 V
I = 80 V

µ-Proc

Q401

Pin Nbr.	P
1	VKK
2	S0
3	S1
4	S2
5	S3
6	S4
7	S5
8	S6
9	S7
10	S8
11	S9
12	S10
13	S11
14	K0
15	K1
16	K2
17	K3
18	TEST
19	OSC
20	OSC
21	RESET
22	HOLD
23	CE4
24	PULSE
25	PULSE
26	CE3
27	CE2
28	CE1
29	CLK O(
30	DATA (
31	DATA (
32	VSS

INDICATOR

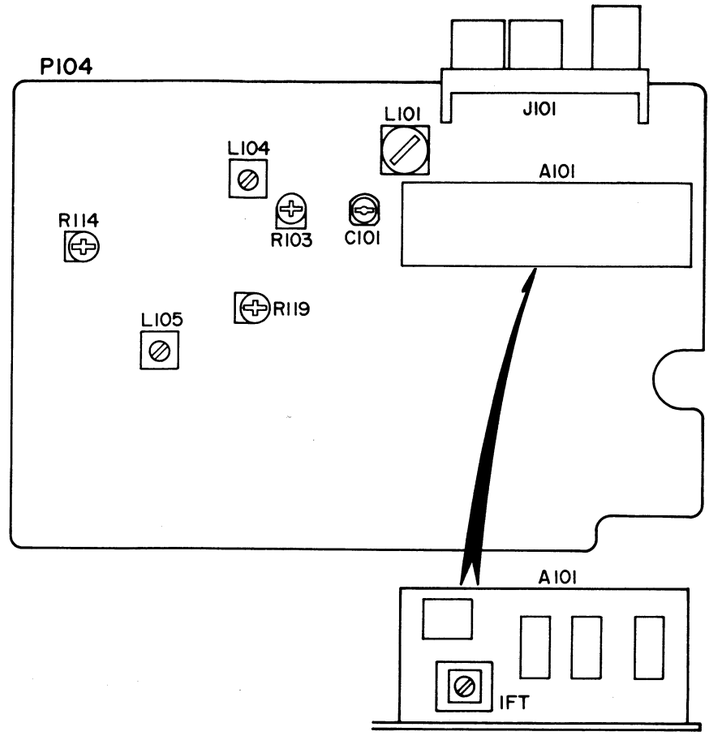
J551
(Tape out)
Output
Max.

J551
(Tape out)
2

l durch Drehen von
ngfügiges Drehen von
orm wieder erscheint.
e "TUNED" auf dem

a d'onda in uscita di
leggermente R114 in
a.
catore "TUNED" del

Tuner Adjustment Positions



Carbon film 0.125 W or 0.2 W	70°C	5%	
Carbon film 0.25 W or 0.33 W	70°C	5%	
Metal film 0.25 W or 0.33 W	70°C	5%	
Carbon film 0.5 W	70°C	5%	
Carbon film 0.67 W	70°C	5%	
Carbon film 1 W or 1.15 W	70°C	5%	
Ⓒ Chip component			

Ceramic plate Tuning ⩽ 120 pF NP.0	2%	
Others	−20/+80%	
Polyester flat foil	10%	
Metalized polyester flat film	10%	
Polyester flat foil small size (Mylar)	10%	
Polysterene film/foil	1%	
Tubular ceramic		
Miniature single		
Subminiature tantalum	± 20%	

*a = 2.5 V
b = 3.15 V or 4 V
c = 6.3 V
d = 10 V
e = 16 V
f = 25 V
g = 40 V
h = 63 V
j = 100 V
l = 125 V
m = 150 V
n = 160 V
q = 200 V
r = 250 V
s = 300 V
t = 350 V
u = 400 V
v = 500 V
w = 630 V
x = 1000 V
A = 1.6 V
B = 6 V
C = 12 V
D = 15 V
E = 20 V
F = 35 V
G = 50 V
H = 75 V
I = 80 V

μ-Processor Data

Q401: TMP47C1670AN H054

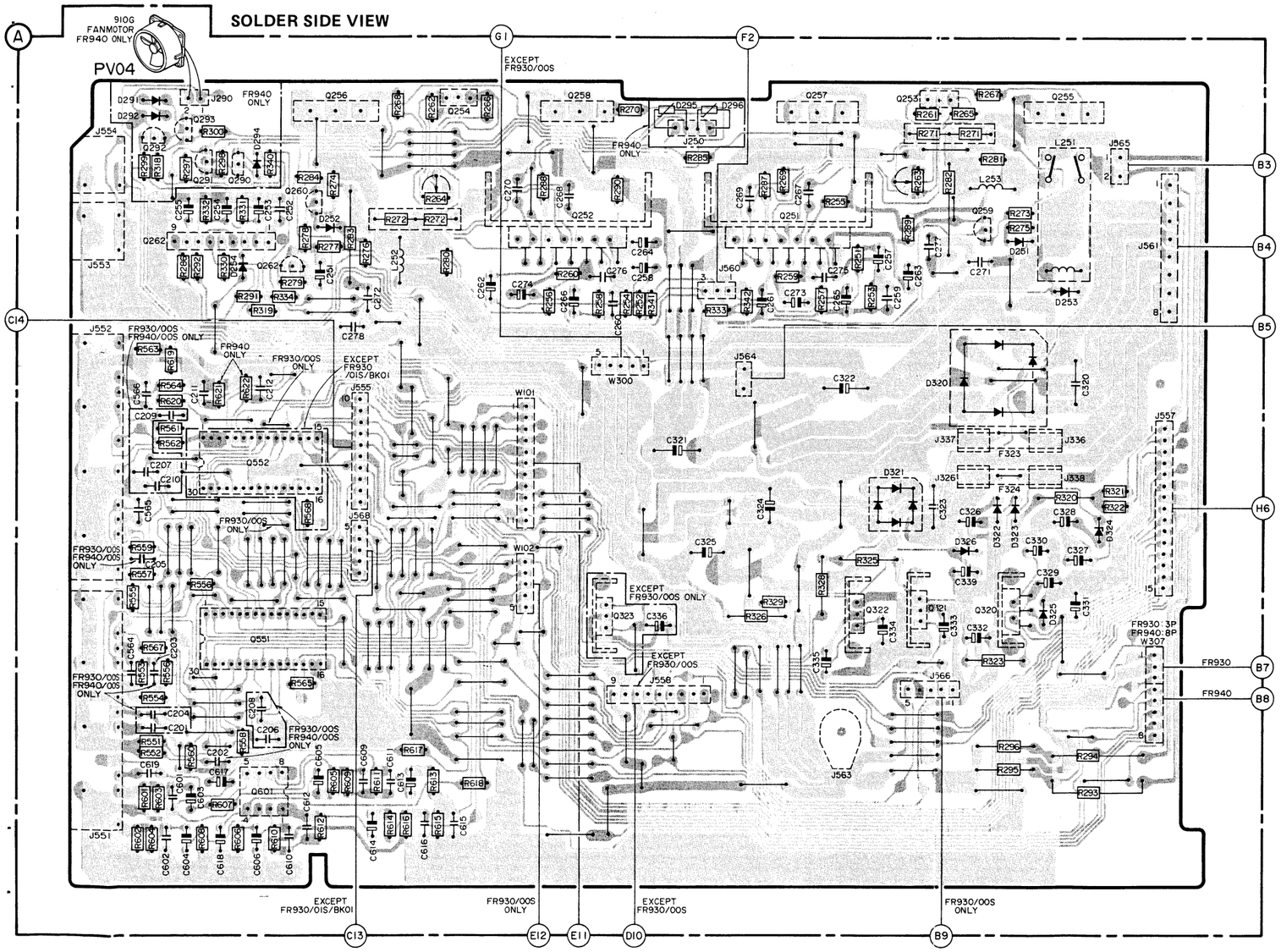
Pin Nbr.	Pin Name	I/O	Act.	Function
1	VKK	–	–	−35V
2	S0	O	H	FTD Segment Drive
3	S1	O	H	
4	S2	O	H	
5	S3	O	H	
6	S4	O	H	
7	S5	O	H	
8	S6	O	H	
9	S7	O	H	
10	S8	O	H	
11	S9	O	H	
12	S10	O	H	
13	S11	O	H	
14	K0	I	H	Key Input
15	K1	I	H	
16	K2	I	H	
17	K3	I	H	
18	TEST	I	–	GND
19	OSC	I	–	Clock Input
20	OSC	O	–	Clock Output
21	RESET	I	L	Reset
22	HOLD	I	H	Elect. Failure Sensing Signal Input
23	CE4	O	H	Strobe Signal Output
24	PULSE UP	I	L	Function Selector Pulse Input
25	PULSE DOWN	I	L	
26	CE3	O	H	Latch Signal Output
27	CE2	O	L	"REQ" Signal Output
28	CE1	O	H	Chip Enable Signal Output
29	CLK OUT	O	H	Serial Data Control Clock Output
30	DATA OUT1	O	H	Data Output
31	DATA OUT2	O	H	Data Signal Output
32	VSS	–	–	GND

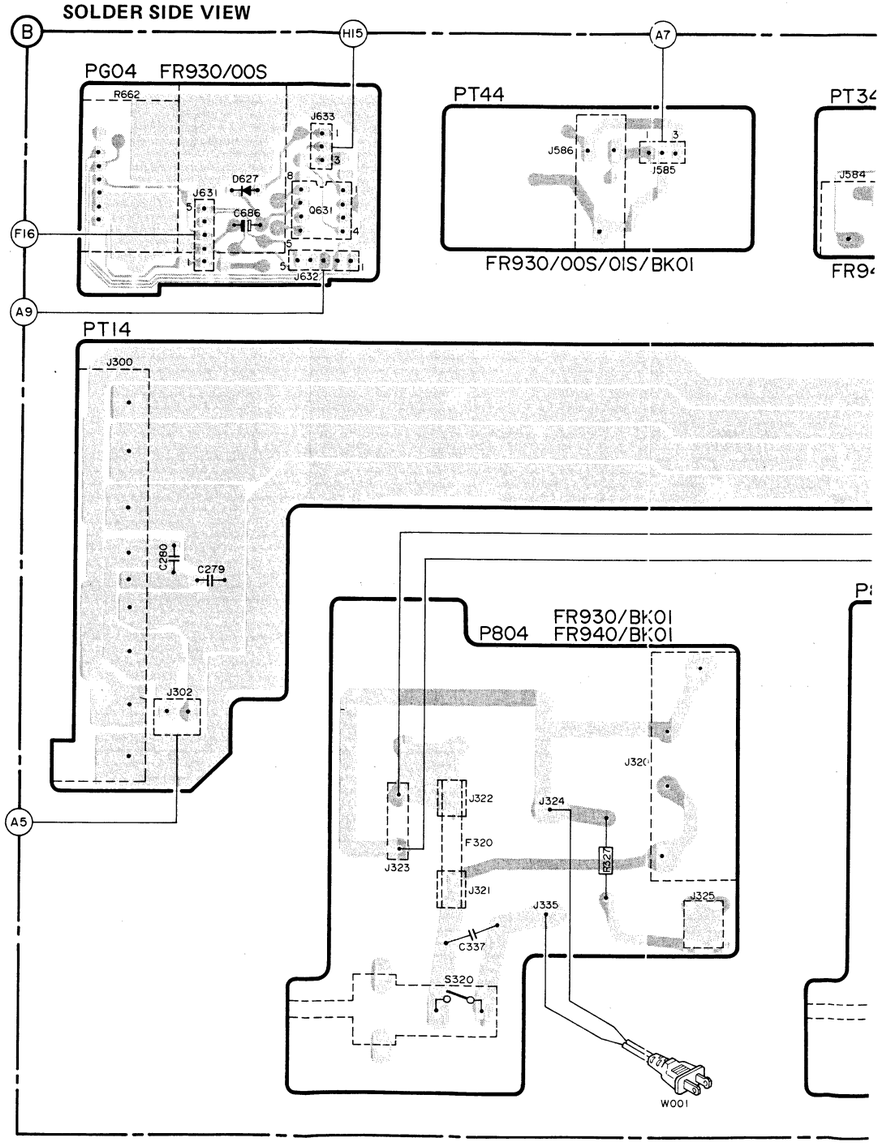
Pin Nbr.	Pin Name	I/O	Act.	Function
33	N.C.	–	–	Not Used
34	AUTO SELECT IND	O	L	Auto Select Mode Indicator Out
35	MUTE	O	L	Audio Mute Output
36	STANDBY IND	O	L	Standby Indicator Output
37	DATA IN	I	H	Serial Data Input
38	W.T. OUT	O	L	Watchdog Reset Signal Output
39	DIGITAL IND	I	L	Detecting Digital Signal Out/In
40	3/4 CH	O	H	3CH/4CH Switching Signal Output
41	RC-5 IN	I	L	RC-5 Bus Signal Input
42	SD IN	I	L	Band Detecting Signal Input
43	EASY LINK IN	I	L	Easy Link Bus Signal Input
44	EASY LINK OUT	O	L	Easy Link Bus Signal Output
45	SPK RELAY	O	L	Speaker Relay Control
46	MUTE	O	L	Front Channel Mute Signal Out
47	V-AUX	O	L	FTD Segment Drive
48	G11	O	H	FTD Grid Drive
49	G10	O	H	
50	G9	O	H	
51	G8	O	H	
52	G7	O	H	
53	G6	O	H	
54	G5	O	H	
55	G4	O	H	
56	G3	O	H	
57	G2	O	H	
58	G1	O	H	
59	G0	O	H	
60	S15	O	H	FTD Segment Drive
61	S14	O	H	
62	S13	O	H	
63	S12	O	H	
64	VDD	–	–	+5V

SCHEMATIC DIAGRAMS AND PARTS LOCATION

R	R318 R286 R292 R297~R300 R277~R279 R340 R284 R274 R268 R262 R266 R288 R260 R290 R270 R341 R285 R342 R287 R269 R257 R255 R251 R253 R263 R261 R265 R267 R273 R320~R323	R
	R551~R568 R601~R622 R330~R332 R291 R319 R334 R283 R276 R272 R264 R280 R256 R258 R254 R252 R333 R326 R329 R259 R328 R325 R289 R271 R282 R281 R275 R293~R296	
C	C564~C566 C251~C255 C278 C272 C262 C270 C268 C276 C264 C321 C269 C261 C273 C267 C275 C265 C257 C259 C263 C277 C271 C320	C
	C201~C212 C601~C606 C564~C570 C609~C619 C274 C266 C260 C258 C336 C325 C324 C335 C322 C334 C323 C333 C332 C326 C339 C327~C331	
Q	Q262 Q290~Q293 Q552 Q551 Q601 Q262 Q260 Q256 Q254 Q258 Q252 Q323 Q251 Q257 Q322 Q353 Q321 Q259 Q320 Q255	Q
D	D291 D292 D254 D294 D252 D295 D296 D321 D320 D322~D326 D251 D253	D
L	L252 L253 L251	L

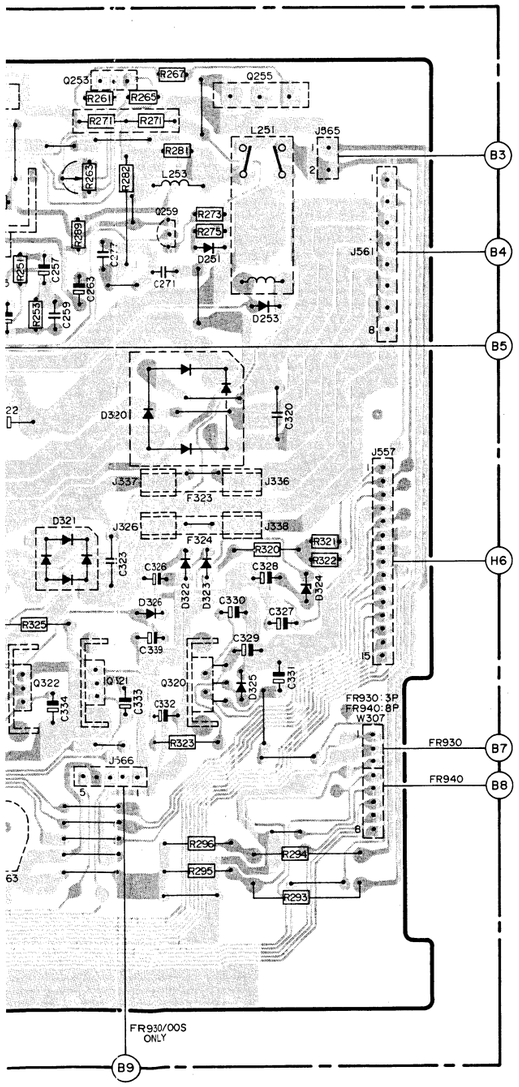
R-C-Q-D	R662 C280 C279 D627 C686 Q631 C337 R327	R-C-Q-D
S-F-L	S320 F320	S-F-L

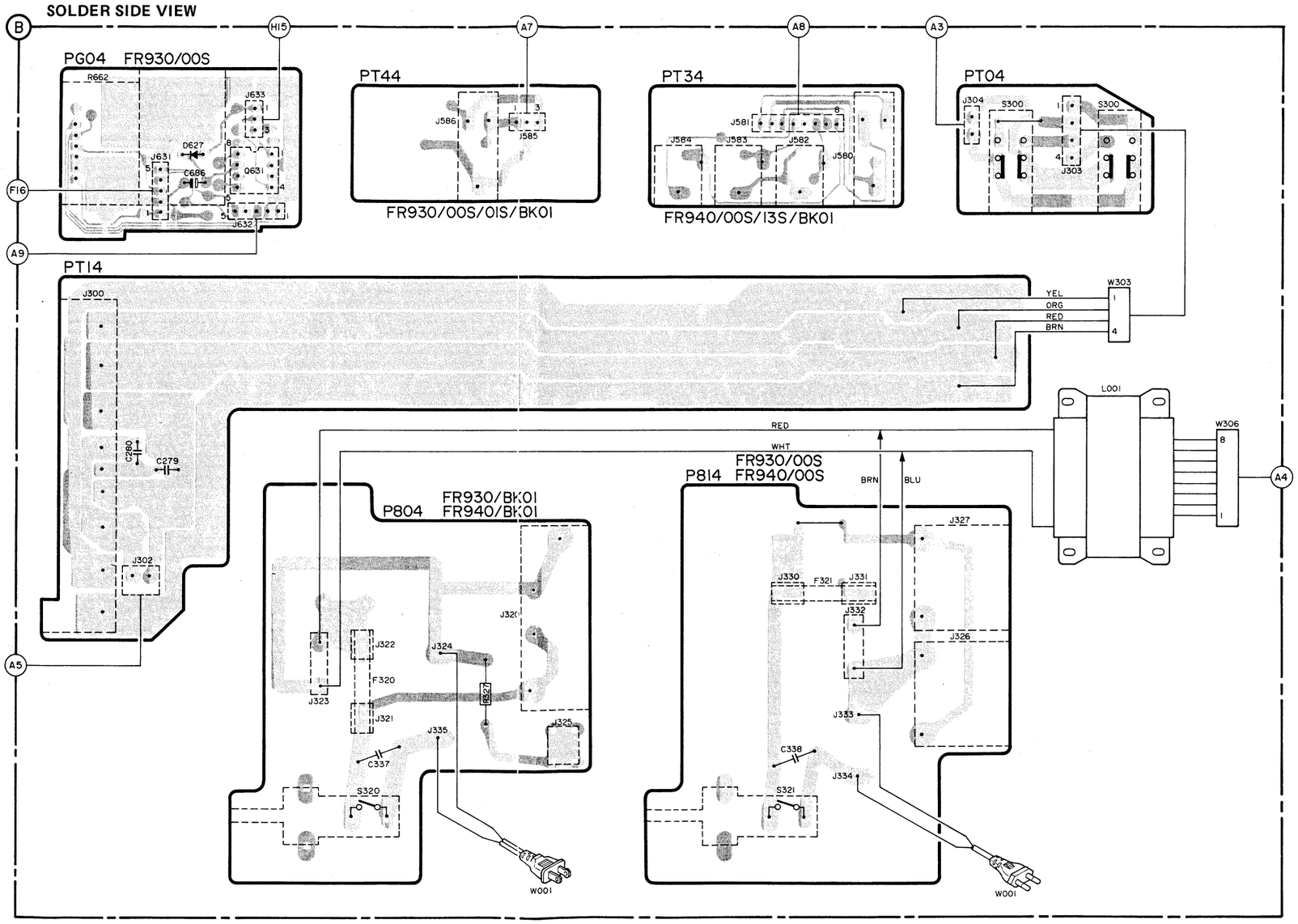




55 R251 R253 R263 R261 R265 R267 R273 R320~R323		R
R325 R289 R271 R282 R281 R275 R293~R296		
275 C265 C257 C259 C263 C277 C271 C320		C
322 C334 C323 C333 C332 C326 C339 C327 ~ C331		
Q322 Q353 Q321 Q259 Q320 Q255		Q
D321 D320 D322~D326 D251 D253		D
L253 L251		L

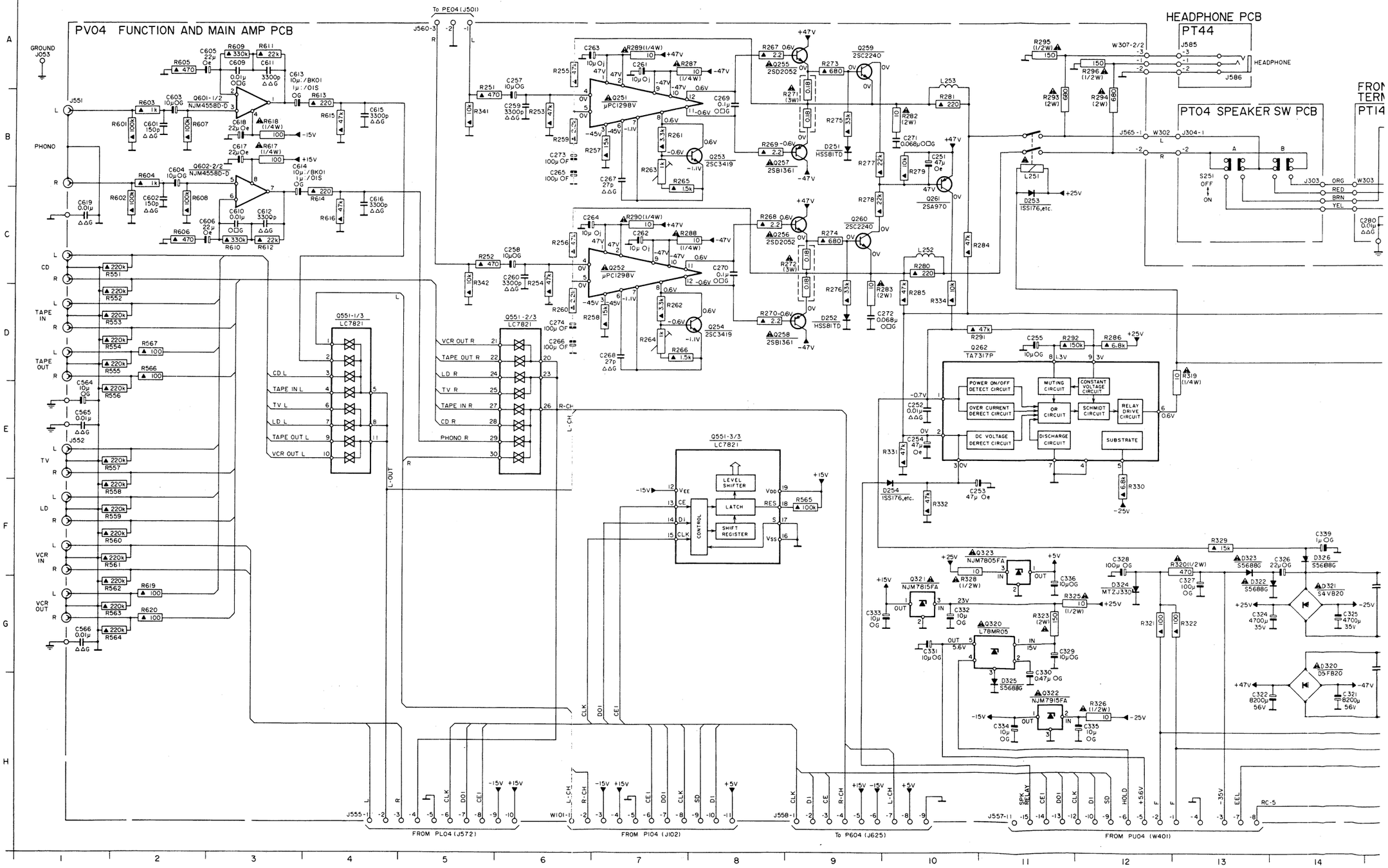
R-C-Q-D	R662 C280 C279 D627 C686	Q631	C337	R327	C338			R-C-Q-D
S-F-L	S320 F320				S321	S300	L001	S-F-L



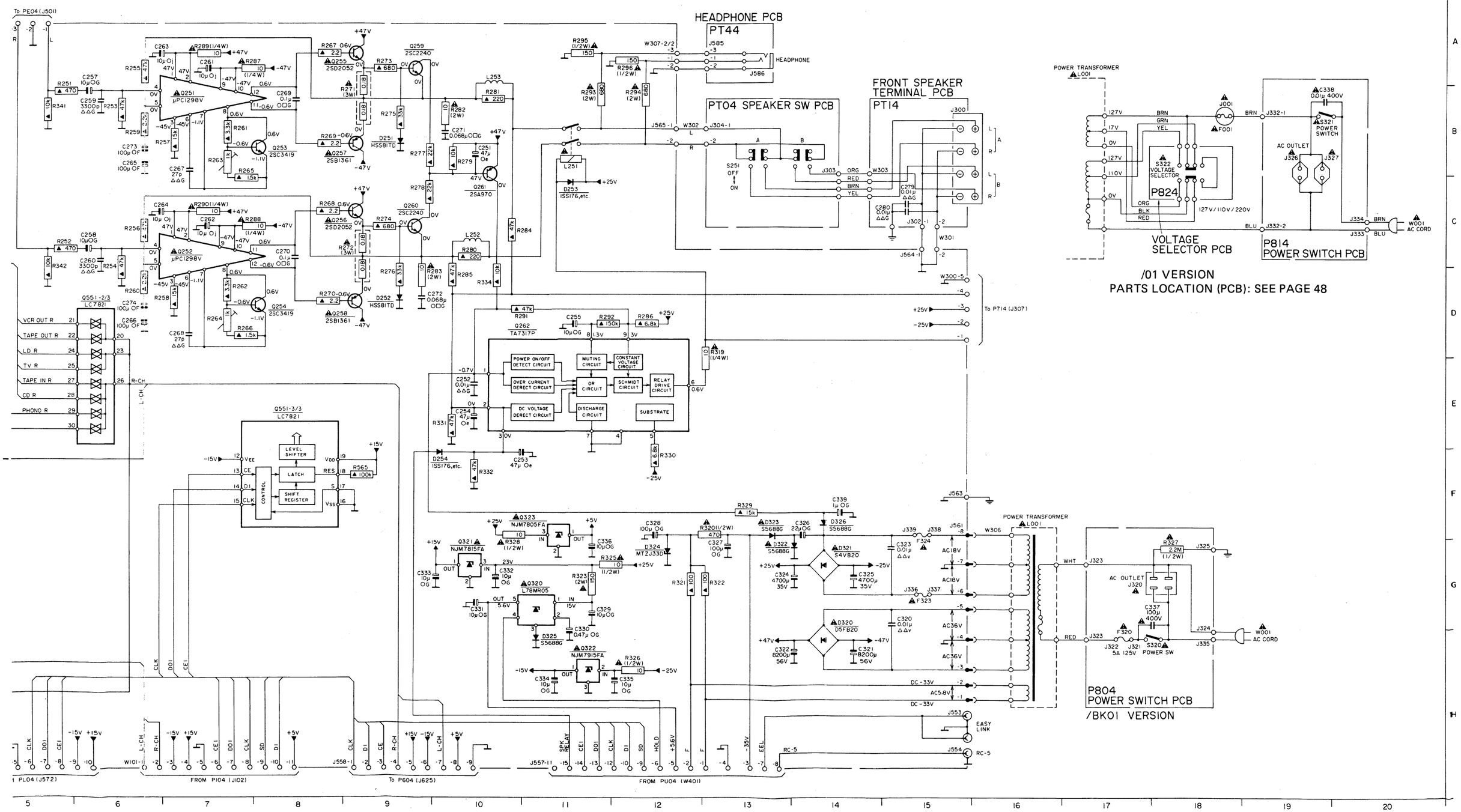


FR930/01S,BK01

C251 B10 C252 E10 C253 F10 C255 D11 C257 B6 C258 C6 C259 B6 C260 C6 C261 A7 C262 C7 C263 A6 C264 C6 C265 B6 C266 D6 C267 B7 C268 D7 C269 B8 C270 C8 C271 B10 C272 D9 C273 B6 C274 D6 C279 C15 C280 C15 C320 G15 C321 H14 C322 H14 C323 G15 C324 G14 C325 D9 C326 F14 C327 G13 C328 F12 C329 G11 C330 H11 C331 G10 C332 G10 C333 G10 C334 H11 C335 H12 C336 G11 C337 G18 C338 B19 C339 F14 C564 E1 C565 E1 C566 G1 C601 B2 C602 C2 C603 B2 C604 B2 C605 A2 C606 C2 C609 A3 C610 C3 C611 A3 C612 C3 C613 B3 C614 B3 C615 B4 C616 C4 C617 B3 C618 B3 C619 C1 D251 B9 D252 D9 D253 C11 D254 F10 D320 H14 D321 G14 D322 G14 D323 F14 D324 G12 D325 H11 D326 F14 F001 B18 F320 H17 J001 B18 J053 A1 J300 B15 J302 C15 J303 B14 J304 B13 J321 H17 J322 H17 J323 G17 J324 H18 J325 G18 J326 B19 J327 B19 J332 B19 J333 C20 J334 C20 J335 H18 J336 G15 J337 G15 J338 F15 J339 F15 J551 B1 J552 E1 J553 H15 J554 H15 J555 H4 J560 A5 J565 B12 L001 F16 L251 B11 L252 C10 L253 A10 Q251 B7 Q252 C7 Q253 B8 Q254 D8 Q255 A9 Q256 C9 Q257 B9 Q258 E9 Q259 A9 Q260 C9 Q261 B10 Q262 D10 R251 B10 R252 E10 R253 F10 R255 D11 R256 B6 R257 B6 R258 C6 R259 B6 R260 C6 R261 A7 R262 C7 R263 A6 R264 C6 R265 B6 R266 D6 R267 B7 R268 C7 R269 B8 R270 C8 R271 B10 R272 D9 R273 C11 R274 D11 R275 B9 R276 C9 R277 B9 R278 B9 R279 C9 R280 C9 R281 A9 R282 B10 R283 D10 R284 D10 R285 D10 R291 C11 R292 C11 R293 A12 R294 A12 R295 A12 R296 A12 R319 C13 R320 G13 R321 G13 R322 G13 R323 G13 R324 G13 R325 G13 R326 H13 R327 H13 R328 H13 R329 G13 R330 H13 R331 H13 R332 H13 R334 D10 R341 E10 R342 E10 R565 G15 S251 B12 W301 B1 W302 B12 W303 B12 W307 A12 W401 H1



C251 B10	C263 A6	C273 B6	C326 F14	C336 G11	C604 B2	C616 C4	D322 G14	J302 C15	J327 B19	J551 B1	J581 A13	Q253 B8	Q320 G11	R254 C6	R264 D7	R274 C9	R284 C10	R294 B12	R327 G18	R552 D1	R562 G1	R605 A2	R615 B4
C252 E10	C264 C6	C274 D6	C327 G13	C337 G18	C605 A2	C617 B3	D323 F14	J303 B14	J332 B19	J552 E1	J585 A12	Q254 D8	Q321 G10	R255 A6	R265 B7	R275 B9	R285 D19	R295 A11	R328 F10	R553 D1	R563 G1	R606 C2	R616 C4
C253 F10	C265 B6	C279 C15	C328 F12	C338 B19	C606 C2	C618 B3	D324 G12	J304 B13	J332 C19	J553 H15	J586 A13	Q255 A9	Q322 H11	R256 C6	R266 D7	R276 D9	R286 D12	R296 A12	R329 A12	R554 D1	R564 G1	R607 B2	R617 B3
C255 D11	C266 D6	C280 C15	C329 G11	C339 F14	C609 A3	C619 C1	D325 H11	J321 H17	J333 C20	J554 H15	L001 A17	Q256 C9	Q323 F11	R257 B7	R267 A8	R277 B9	R287 A7	R319 D13	R330 F12	R555 D1	R565 F9	R608 C2	R618 B3
C257 B6	C267 B7	C320 G15	C330 H11	C564 E1	C610 C3	D251 B9	D326 F14	J322 H17	J334 C20	J555 H4	L001 F16	Q257 B9	Q551 D4	R258 D7	R268 C8	R278 C9	R288 C7	R320 F13	R331 E10	R556 E1	R566 D2	R609 A3	R619 G2
C258 C6	C268 D7	C321 H14	C331 G10	C565 E1	C611 A3	D252 D9	F001 B18	J323 G17	J335 H18	J560 A5	L251 B11	Q258 E9	Q551 D6	R259 B6	R269 B8	R279 B10	R289 A7	R321 G12	R332 F10	R557 E1	R567 D2	R610 C3	R620 G2
C259 B6	C269 B8	C322 H14	C332 G10	C566 G1	C612 C3	D253 G11	F320 H17	J323 H17	J336 G15	J561 F15	L252 C10	Q259 A9	Q552 E8	R260 D6	R270 D8	R280 C10	R290 C7	R322 G13	R334 D10	R558 F1	R601 B2	R611 A3	S251 B13
C260 C6	C270 C8	C323 G15	C333 G10	C601 B2	C613 B3	D254 F10	J001 B18	J324 H18	J337 G15	J563 F15	L253 A10	Q260 C9	R251 B5	R261 B7	R271 A9	R341 B5	R291 D10	R323 G11	R559 F1	R602 C2	R612 C3	S320 H18		
C261 A7	C271 B10	C324 G14	C334 H11	C602 C2	C614 B3	D320 H14	J053 A1	J325 G18	J338 F15	J564 C15	Q251 B7	Q261 B10	R252 C5	R262 D7	R272 C9	R282 B10	R292 D11	R325 G11	R342 C5	R560 F1	R603 B2	R613 B4	S321 B19	
C262 C7	C272 D9	C325 D9	C335 H12	C603 B2	C615 B4	D321 G14	J300 B15	J326 B19	J339 F15,	J565 B12	Q252 C7	Q262 D10	R253 B6	R263 B7	R273 A9	R283 D9	R293 B11	R326 H12	R551 C1	R561 F1	R604 B2	R614 C4	S322 B18	



FR930/00S

C251 B10 C252 E10 C253 F10 C254 E10 C255 D11 C257 B6 C258 C6 C259 B6 C260 C6 C261 A7
C262 C7 C263 A6 C264 C6 C265 B6 C266 D6 C267 B7 C268 D7 C269 B8 C270 C8 C271 B10
C272 D9 C273 B6 C274 D6 C279 C15 C280 C15 C320 G15 C321 H14 C322 H14 C323 G15 C324 G14
C325 G14 C326 F14 C328 F12 C329 G11 C330 H11 C331 G10 C332 G10 C333 H11 C334 G15 C335 H12
C339 F14 C564 E1 C565 E1 C566 G1 C601 B2 C602 B2 C603 B2 C604 B2 C605 A2 C606 C2
C609 A3 C610 A3 C611 A3 C612 C3 C613 B3 C614 B4 C615 B4 C616 C4 C617 B3 C618 B3
C619 C1 D251 B9 D252 D9 D253 C11 D254 F10 D320 F14 D321 G14 D322 G14 D324 G12 D325 H11
D326 F14 D327 H10 D627 E18 D628 E18 F321 E18 J053 A1 J104 D17 J300 B15 J302 C15 J303 B14
J304 B13 J326 B19 J327 B19 J330 H17 J331 H17 J332 G17 J332 H17 J333 C20 J334 G20 J551 B1
J552 E1 J553 H15 J554 H15 J555 H4 J557 H11 J560 A5 J561 F15 J563 E15 J565 B12
J568 H3 J581 A13 J585 A13 J586 A13 J631 F16 J632 E16 J633 E19 L001 F16 L251 B11 L252 C10
L253 A10 Q251 B7 Q252 C7 Q253 B8 Q254 D8 Q255 A9 Q256 C9 Q257 B9 Q258 E9 Q259 A9
Q260 C9 Q261 B10 Q262 D10 Q320 G11 Q321 G10 Q322 H11 Q551 D4 Q552 F4
Q552 F6 Q552 G8 Q631 E18 R251 B5 R252 C5 R253 B6 R254 C6 R255 D6 R256 D7 R257 B7
R258 D7 R259 B6 R260 D6 R261 B7 R262 D7 R263 B7 R264 D7 R265 B7 R266 D7 R267 B8
R268 C8 R269 B8 R270 D8 R271 A9 R272 C9 R273 A9 R274 C9 R275 B9 R276 B9 R277 B9

PV04 FUNCTION AND MAIN AMP PCB

To PE04 (J501)

HEADPHONE PCB
PT44

PT04 SPEAKER SW PCB

SPEAKER TERMINAL PCB
PT14

PI04-2/2 TUNER PC

PG04 VOL

POWER TRANSFOR

Q551-1/3 LC7821
Q551-2/3 LC7821
Q551-3/3 LC7821
Q552-1/3 LC7823
Q552-2/3 LC7823
Q552-3/3 LC7823
Q601-1/2 NJM4558D-D
Q602-2/2 NJM4558D-D
Q0251 µPC1298V
Q0252 µPC1298V
Q0253 2SC3419
Q0254 2SC3419
Q0255 2SD2052
Q0256 2SD2052
Q0257 2SB1361
Q0258 2SB1361
Q0259 2SC2240
Q0260 2SC2240
Q0261 2SA970
Q0262 TA7317P
Q0320 L78MR05
Q0321 NJM7815FA
Q0322 NJM7915FA

POWER ON/OFF DETECT CIRCUIT
OVER CURRENT DERECT CIRCUIT
DC VOLTAGE DERECT CIRCUIT
MUTING CIRCUIT
OR CIRCUIT
DISCHARGE CIRCUIT
CONSTANT VOLTAGE CIRCUIT
SCHMIDT CIRCUIT
RELAY DRIVE CIRCUIT
SUBSTRATE
LEVEL SHIFTER
LATCH
SHIFT REGISTER
CONTROL

FROM PL14 (J573)
FROM PL04 (J572)
FROM PI04 (JI02)
FROM PU04 (W401)

C251 B10 C252 E10 C253 F10 C254 E10 C255 D11 C257 B6 C258 C6 C259 B6 C260 C6 C261 A7
C262 C7 C263 A6 C264 C6 C265 B6 C266 D6 C267 B7 C268 D7 C269 B8 C270 C8 C271 B10
C272 D9 C273 B6 C274 D6 C279 C15 C280 C15 C320 G15 C321 H14 C322 H14 C323 G15 C324 G14
C325 G14 C326 F14 C328 F12 C329 G11 C330 H11 C331 G10 C332 G10 C333 G10 C334 H11 C335 H12
C339 F14 C564 E1 C565 E1 C566 G1 C601 B2 C602 C2 C603 B2 C604 B2 C605 A2 C606 C2
C609 A3 C610 A3 C611 A3 C612 C3 C613 B3 C614 B4 C615 B4 C616 C4 C617 B3 C618 B3
C619 C1 D251 B9 D252 D9 D253 C11 D254 F10 D320 F14 D321 G14 D322 G14 D324 G12 D325 H11
D326 F14 D327 H10 D627 E18 D628 E18 F321 E18 J053 A1 J104 D17 J300 B15 J302 C15 J303 B14
J304 B13 J326 B19 J327 B19 J330 H17 J331 H17 J332 G17 J332 H17 J333 C20 J334 C20 J551 B1
J552 E1 J553 H15 J554 H15 J555 H4 J557 H11 J560 A5 J561 F15 J563 F15 J564 C15 J565 B12
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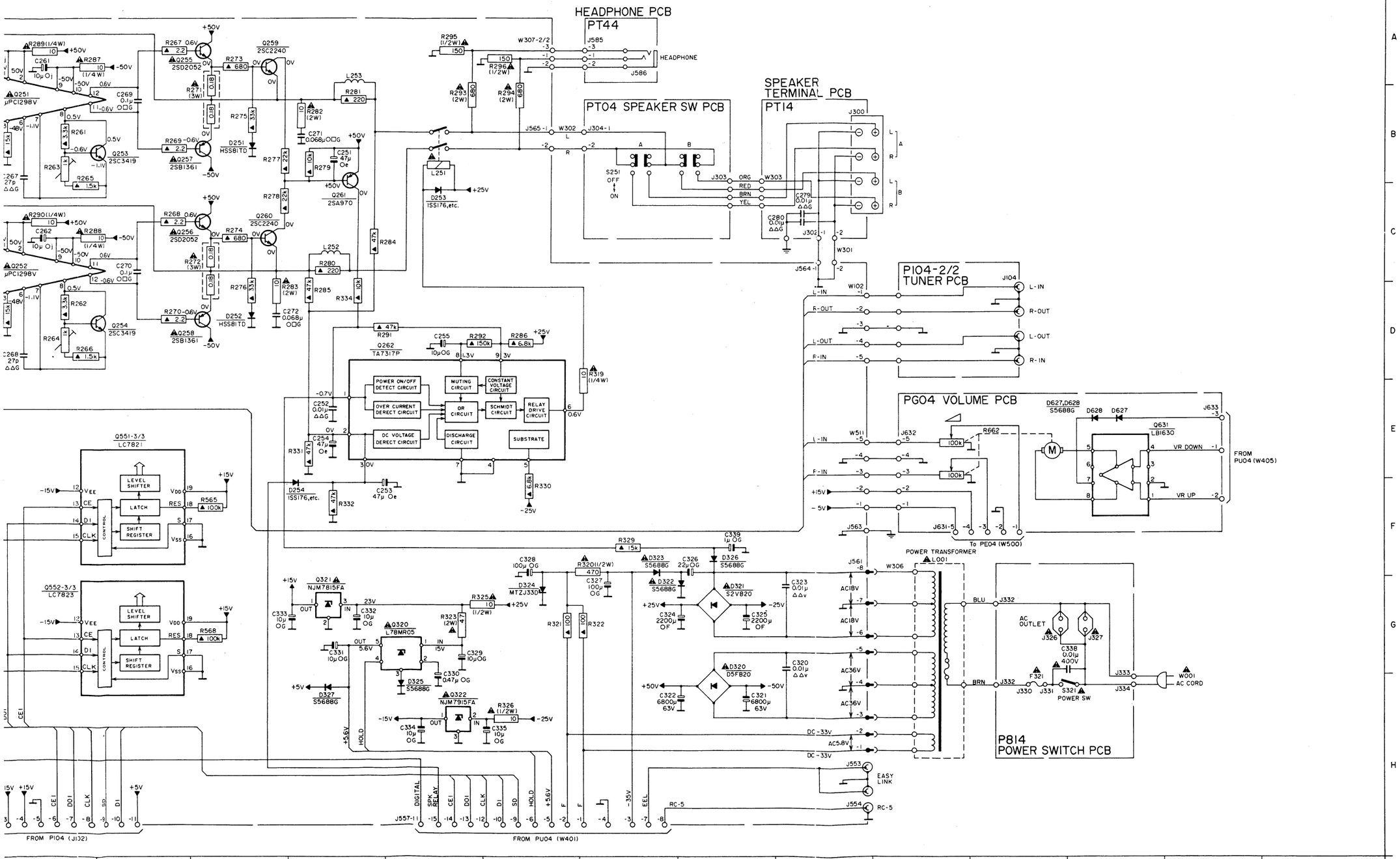

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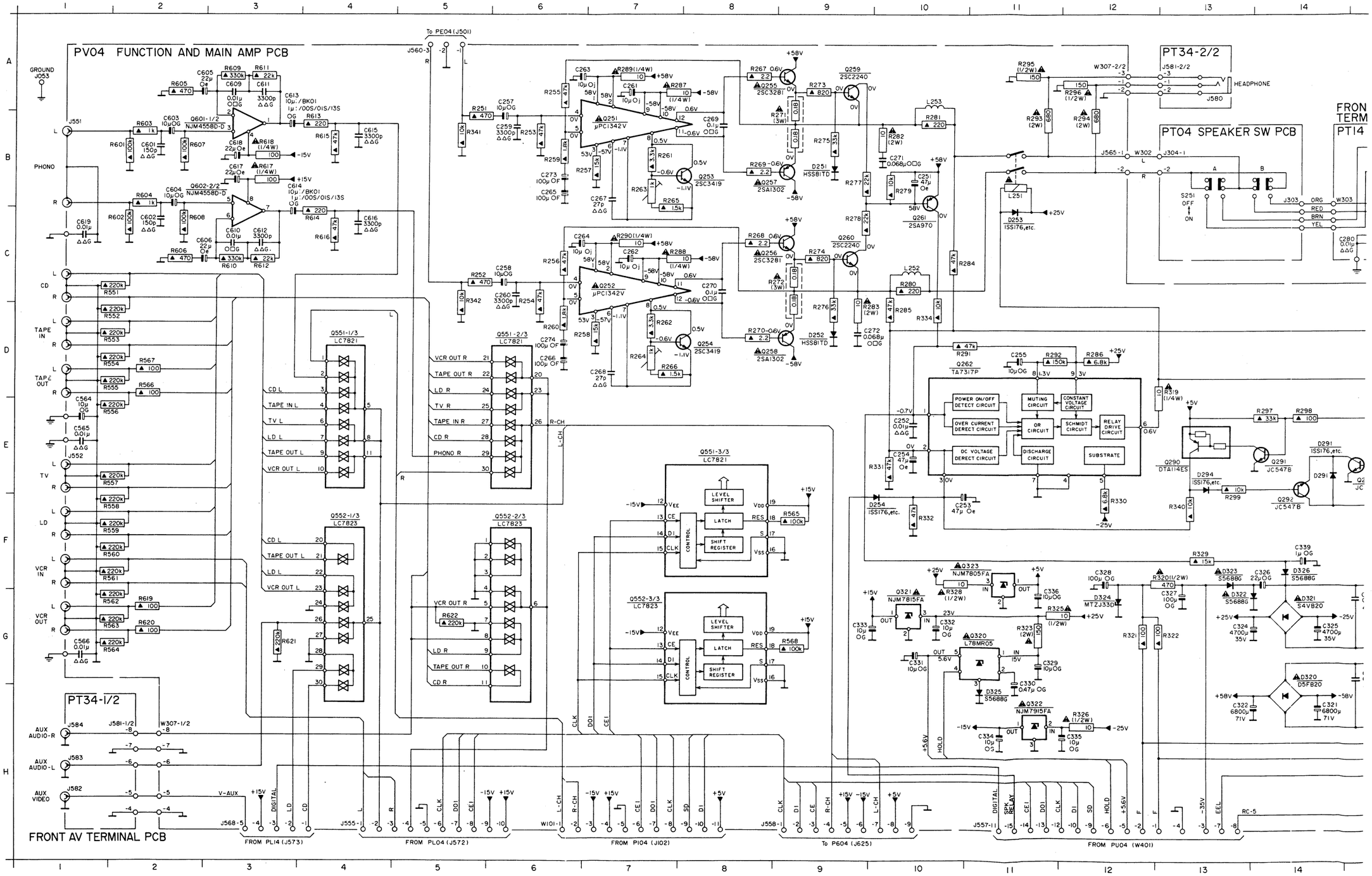

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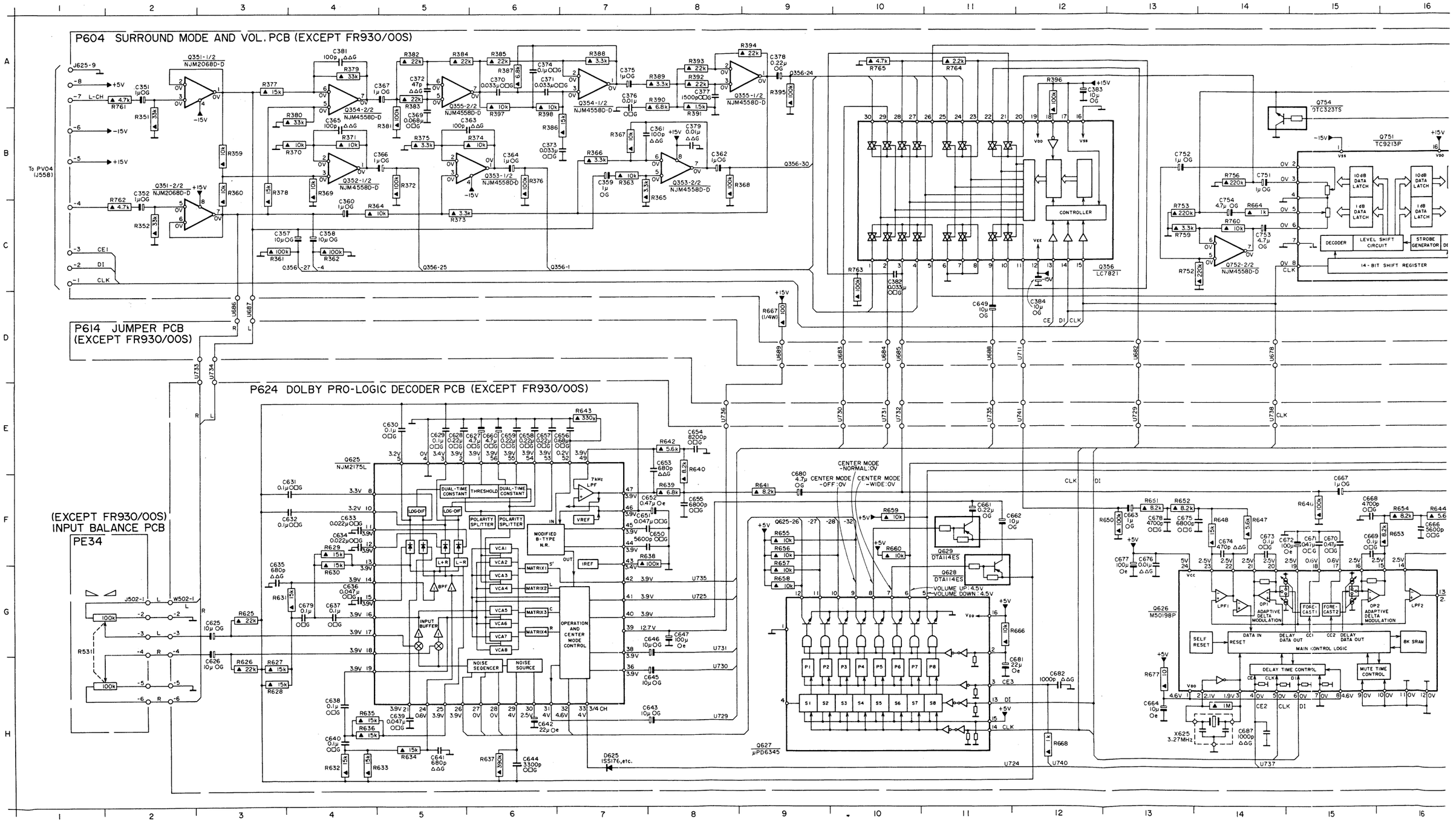

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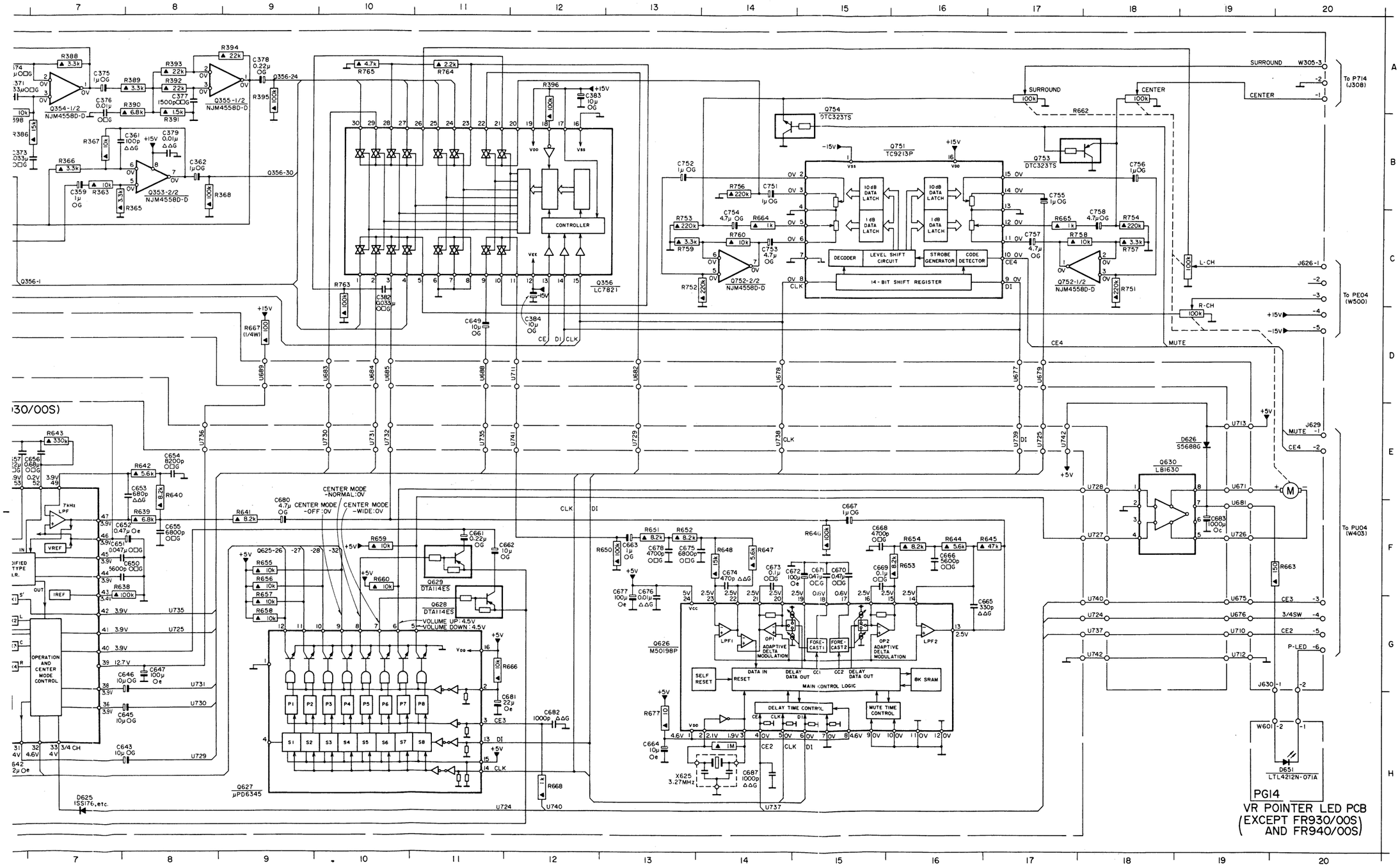

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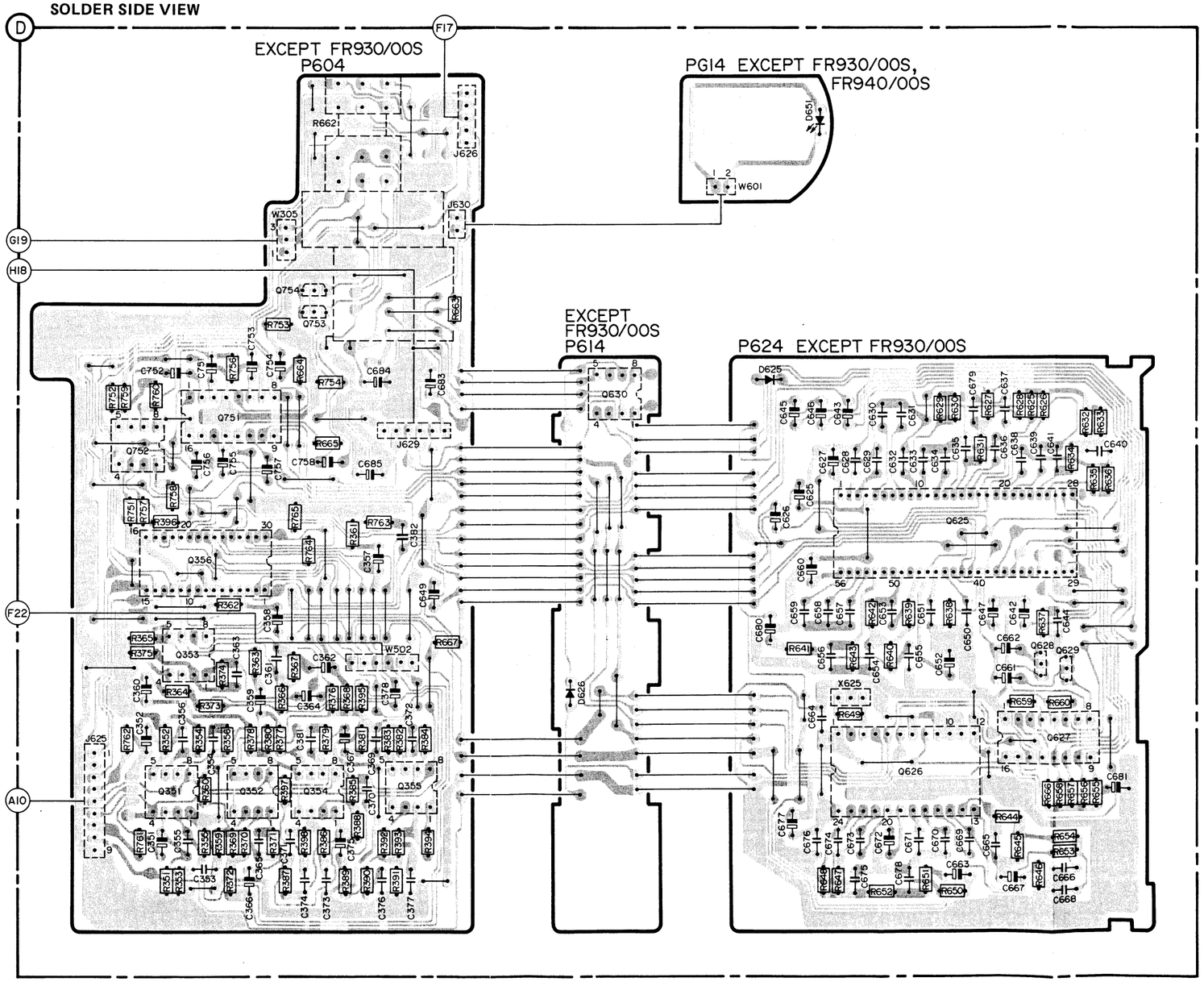

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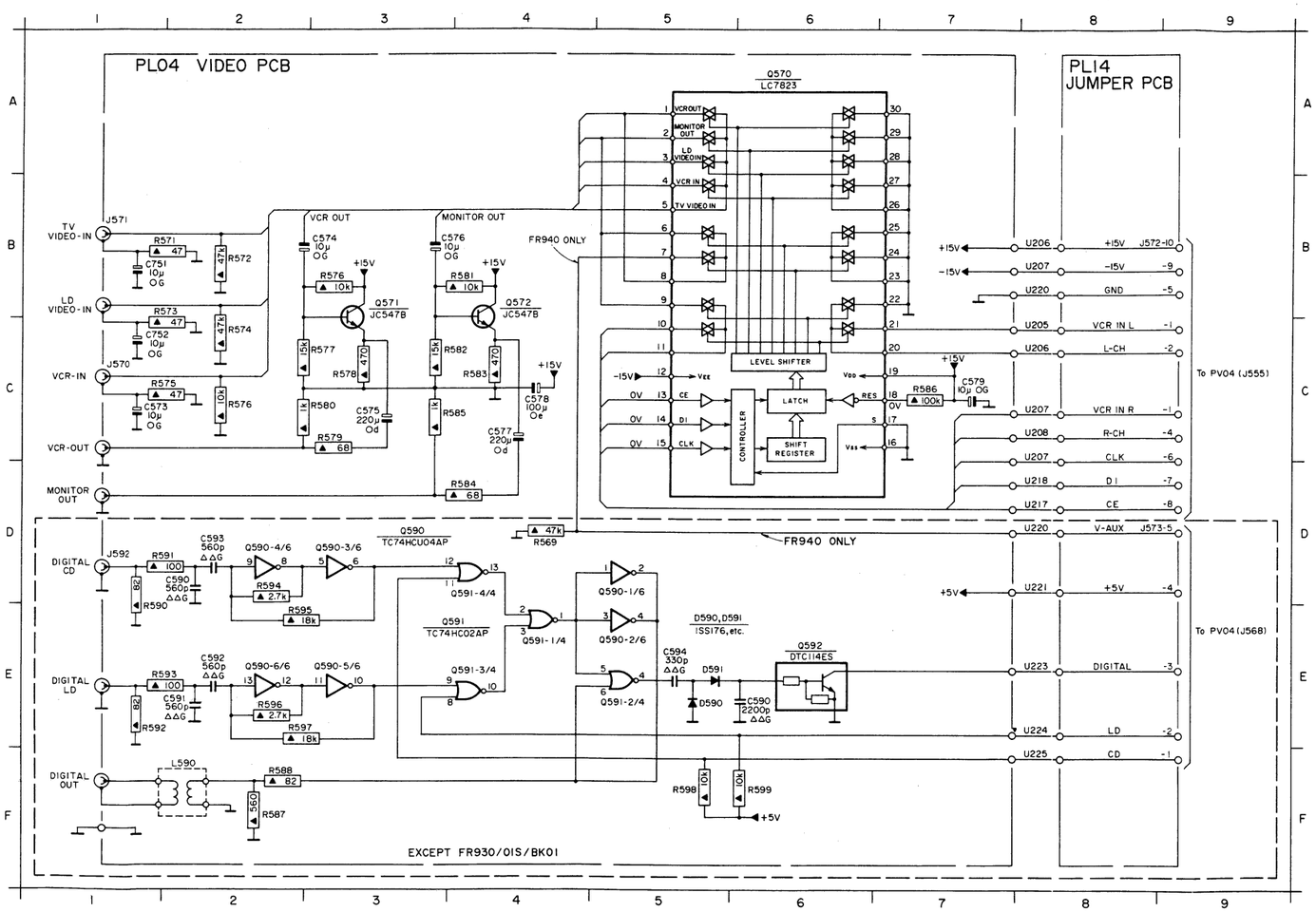

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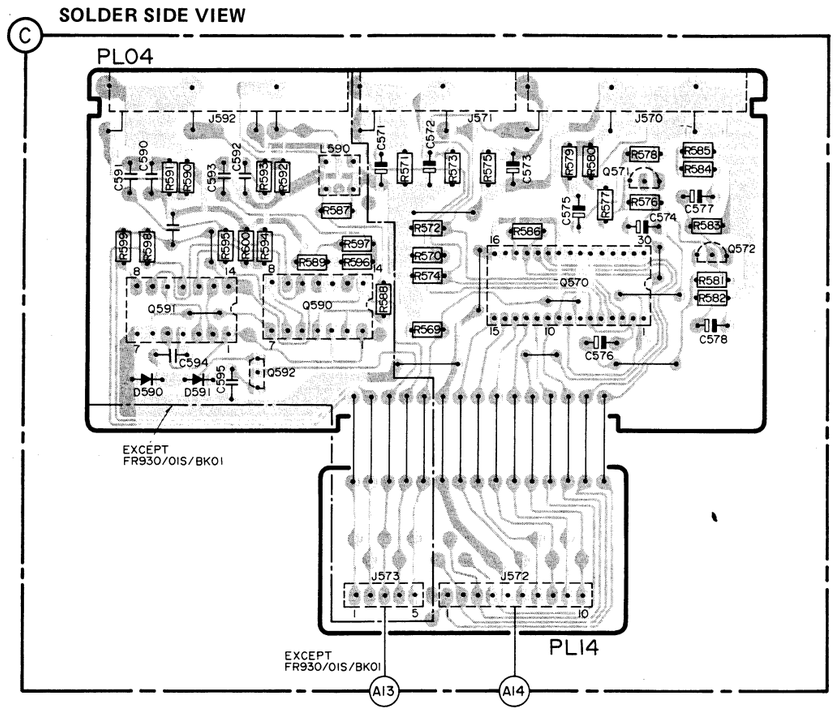

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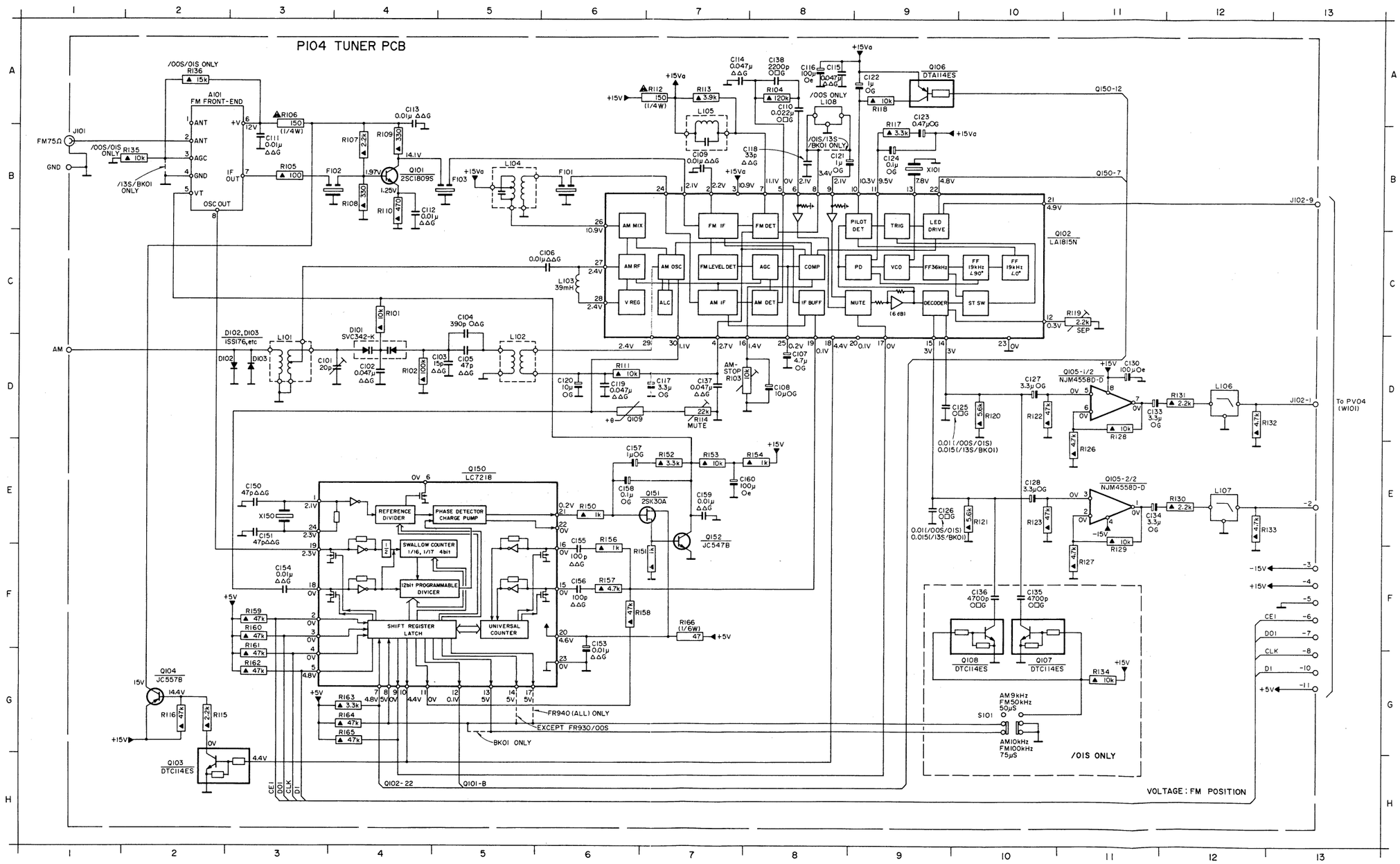

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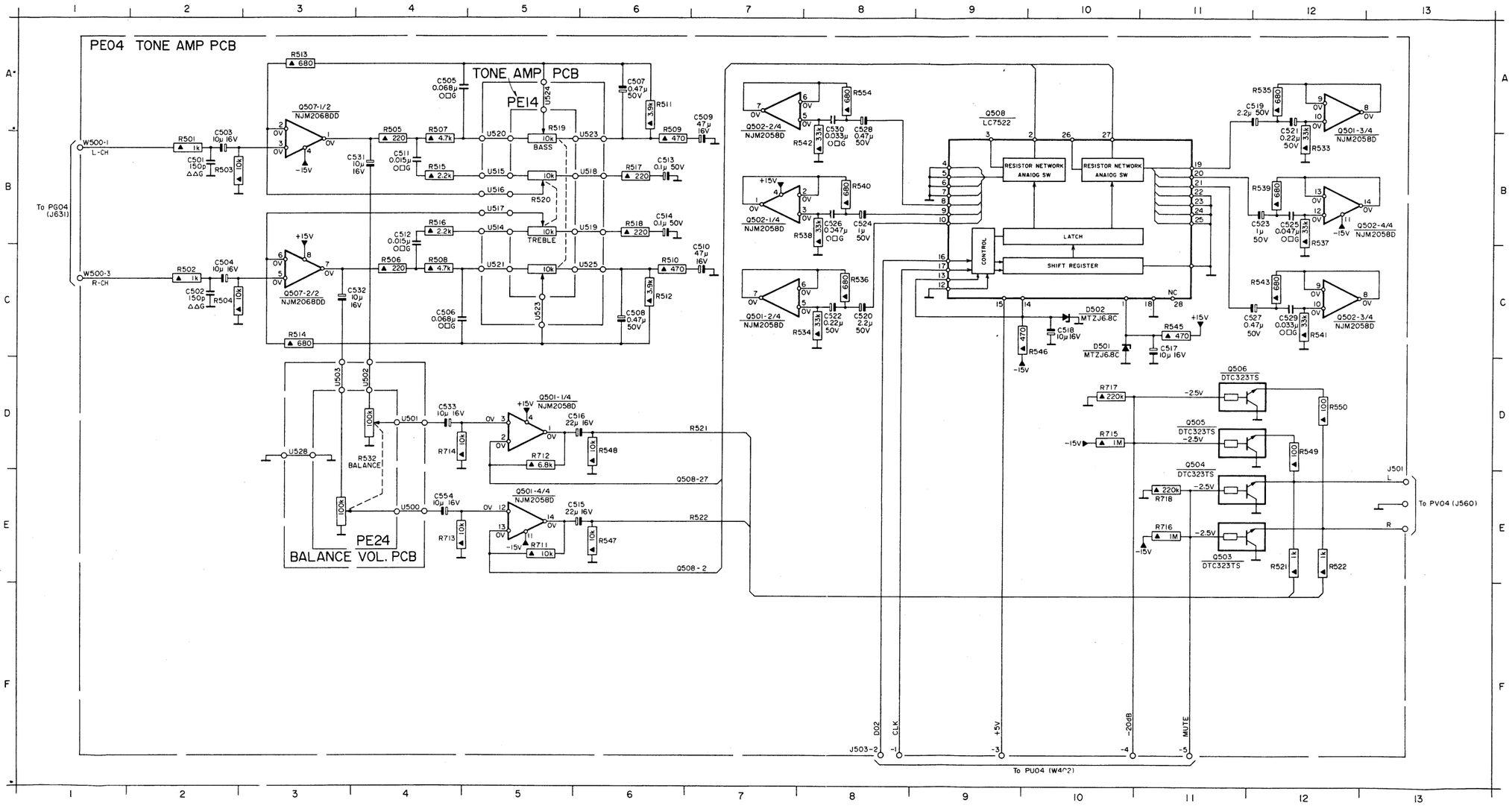
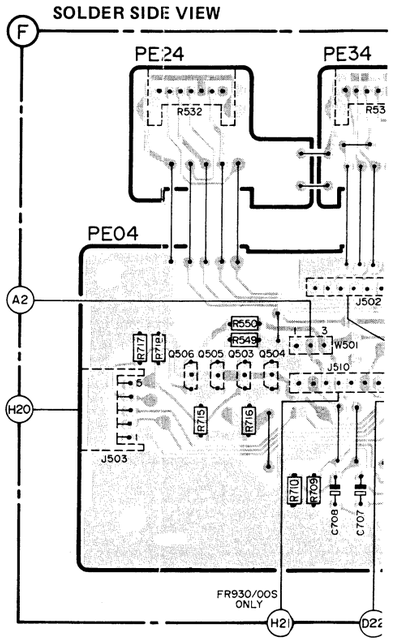


SOLDER SIDE VIEW



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FR930/00S

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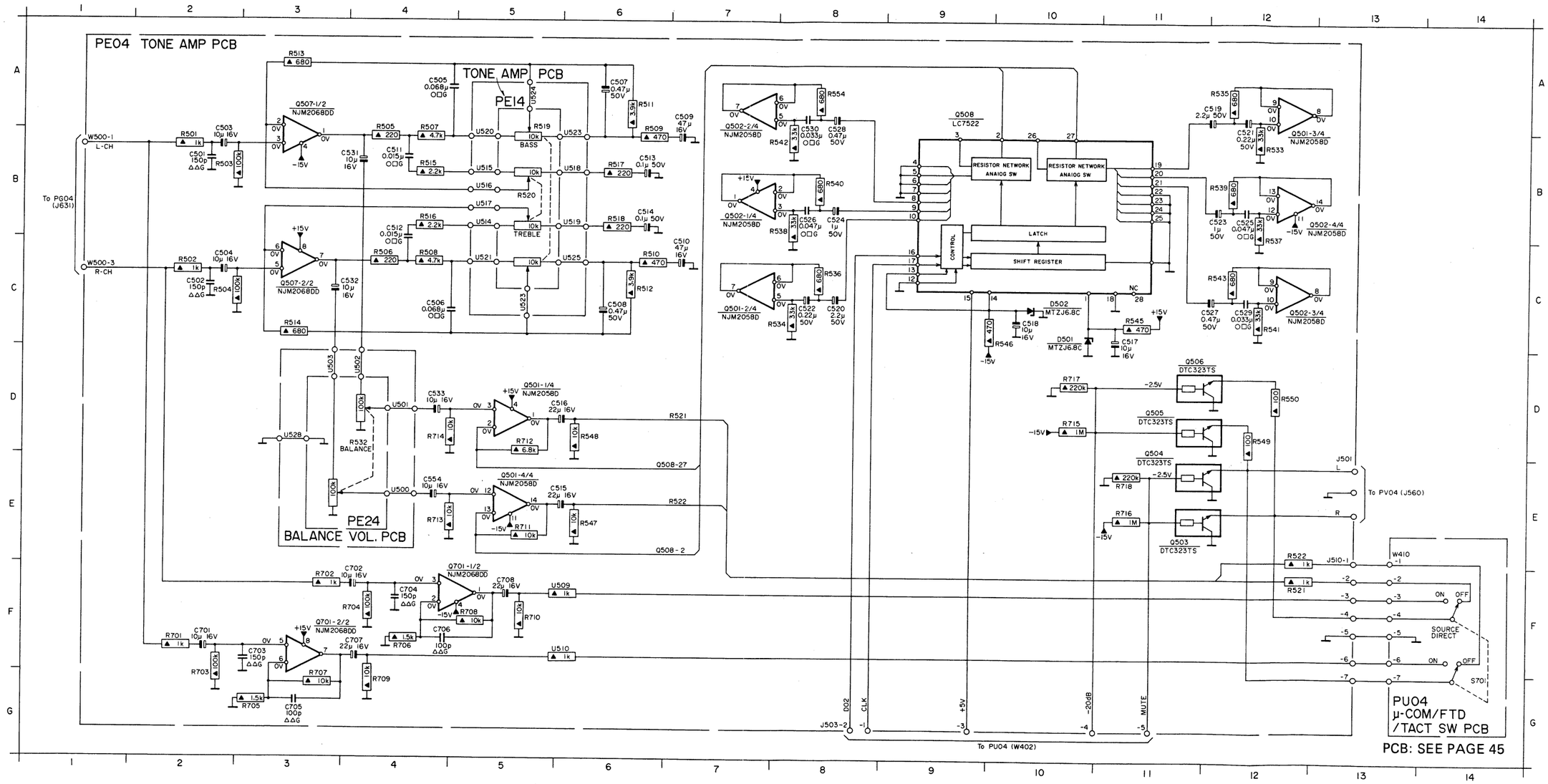

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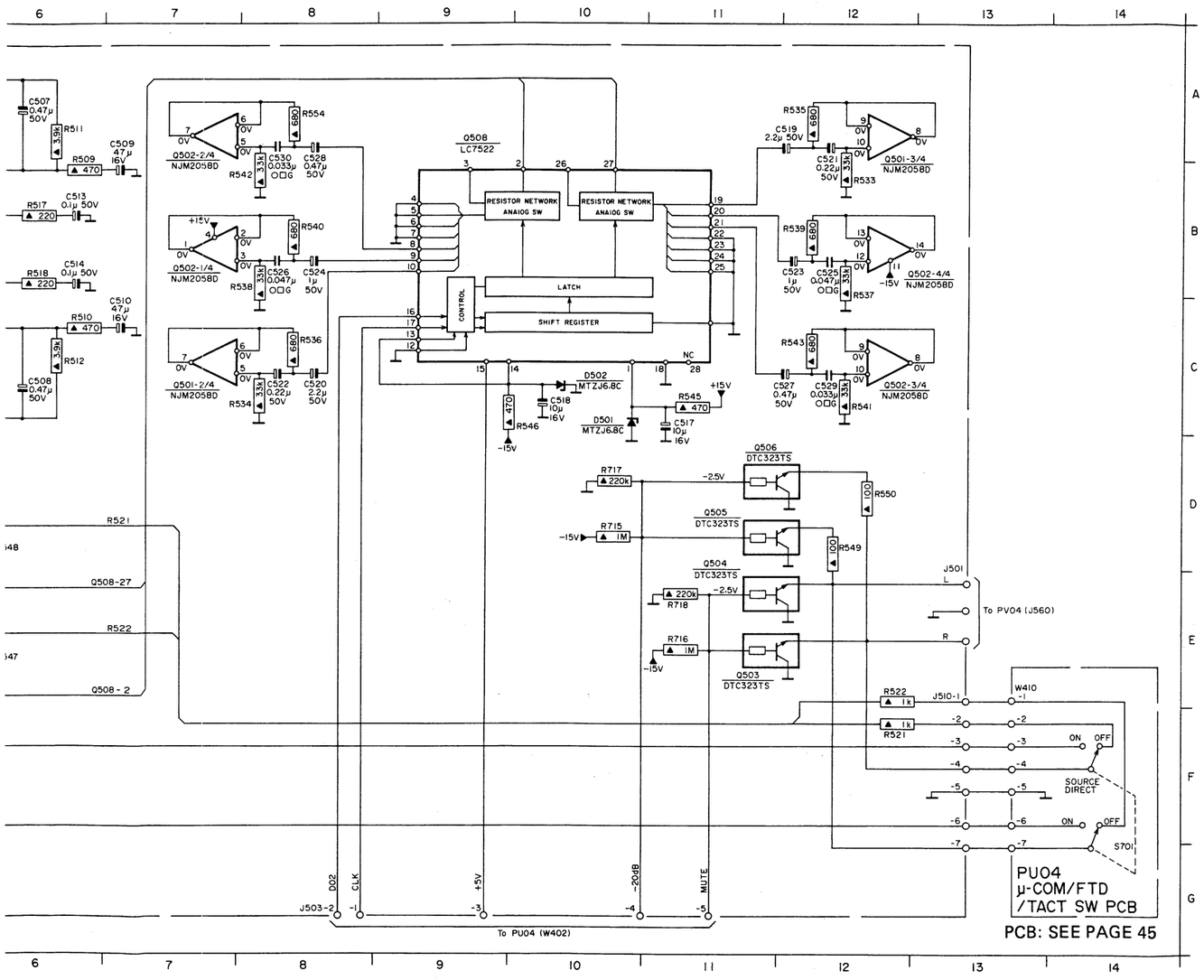
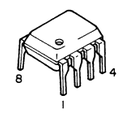


SEMI-CONDUCTOR LAYOUT



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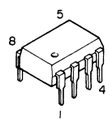

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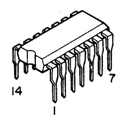

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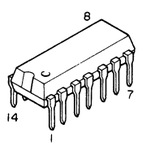

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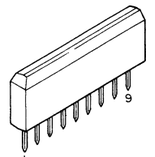

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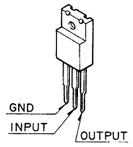

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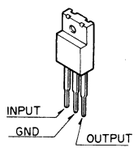

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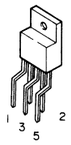

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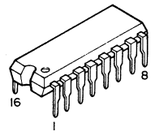

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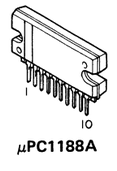

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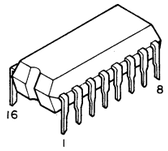

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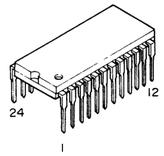

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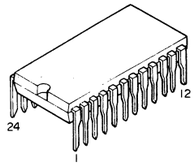

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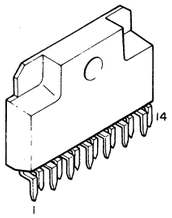

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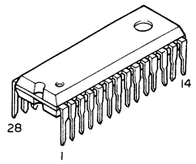

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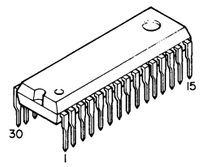

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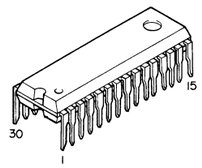

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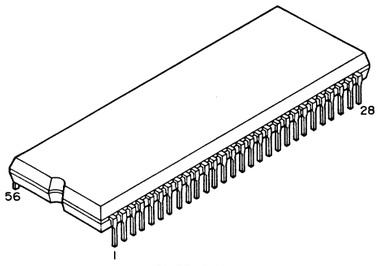

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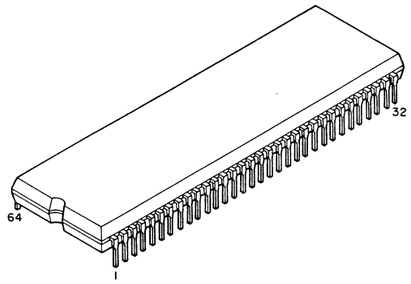

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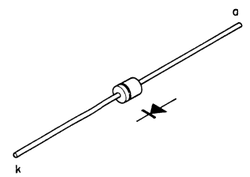
SEMI-CONDUCTOR LAYOUT



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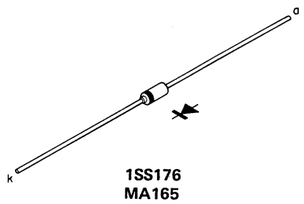

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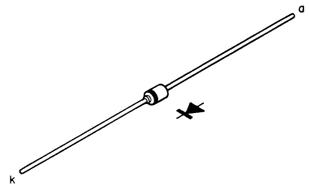

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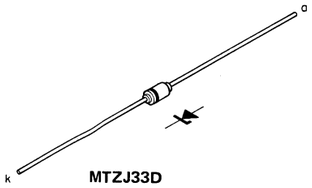

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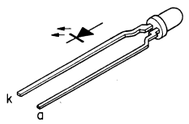

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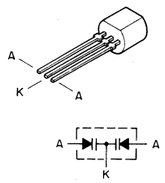

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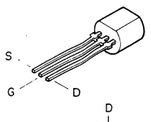

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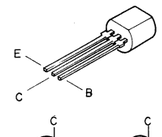

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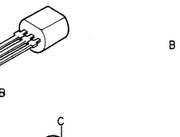

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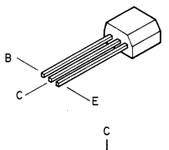

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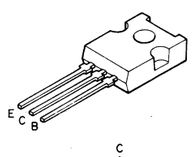

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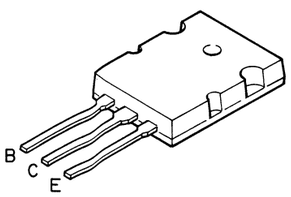

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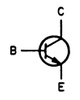

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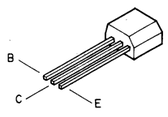

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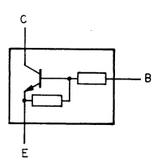

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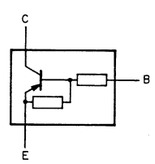

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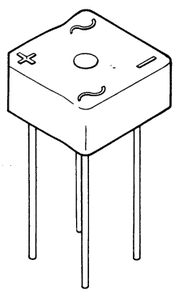
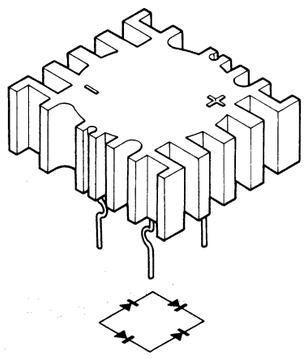


PCS 67 152 S4VB-20



D5FB02L20

FR930/FR940

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C404	C3	D407	B14
C405	H9	D408	B13
C406	D3	D409	B13
C407	G10	D410	B12
D401	C3	D411	B12
D402	C3	D412	B11
D403	F12	D413	B11

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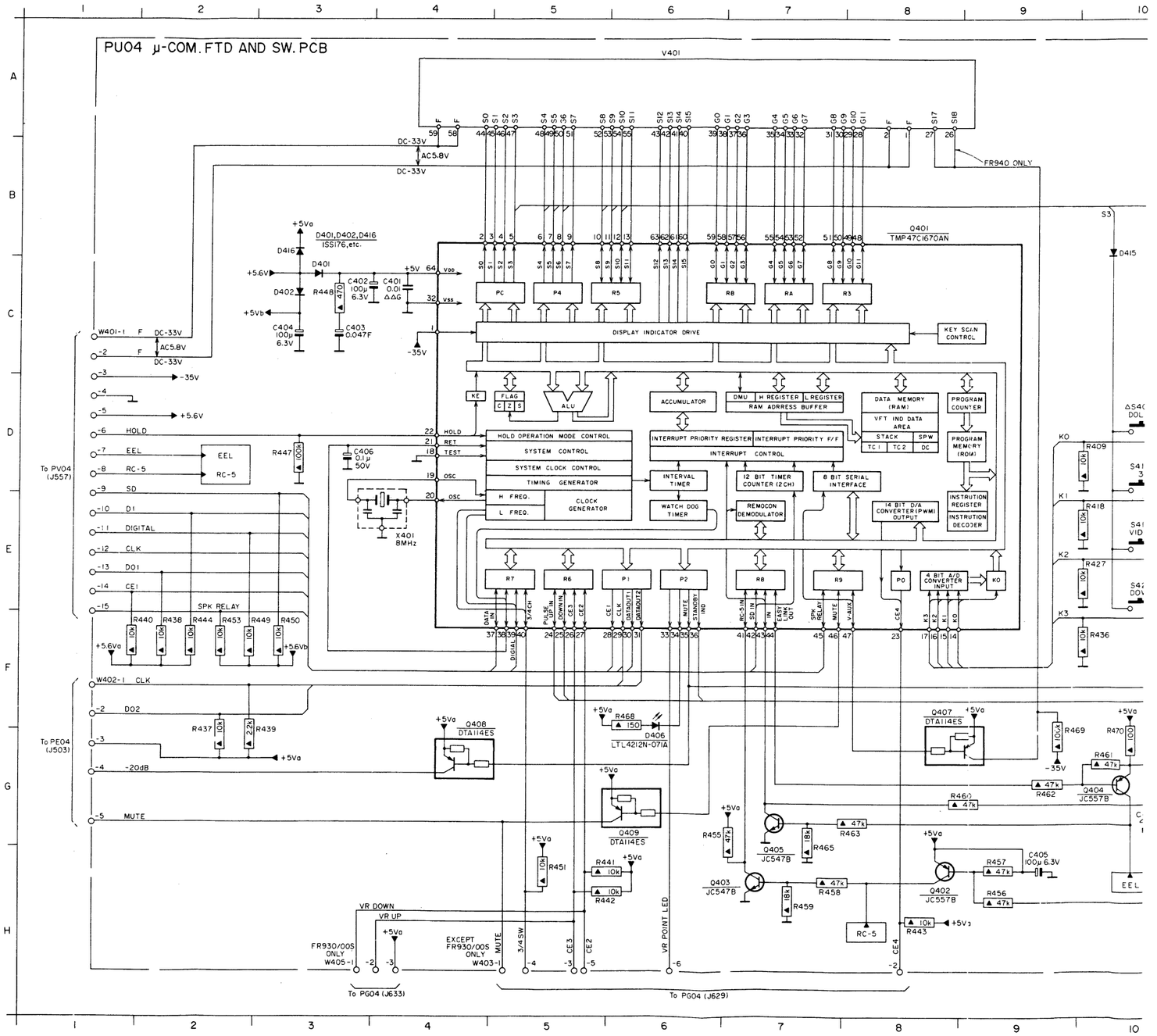

FR930/FR940

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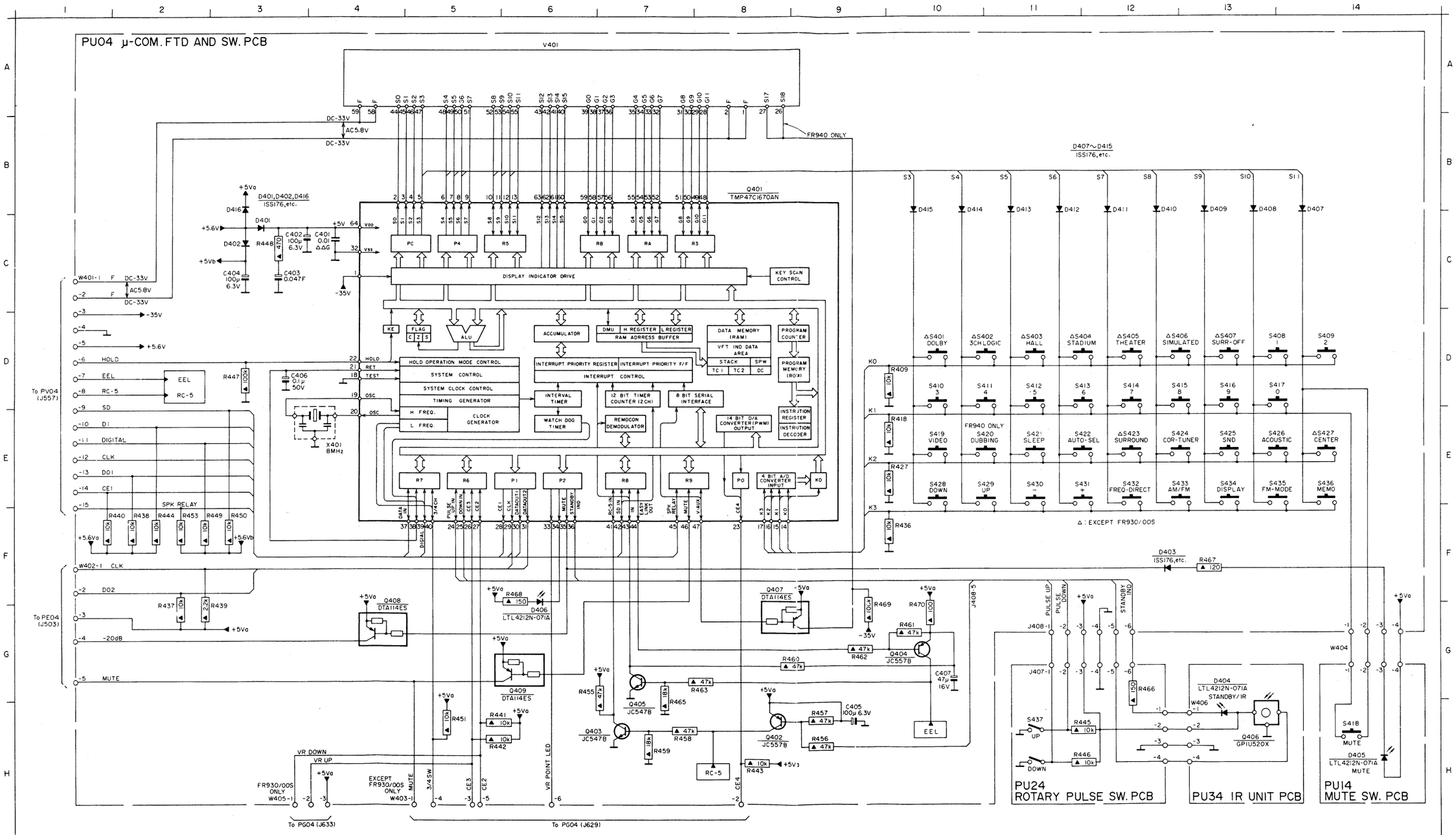
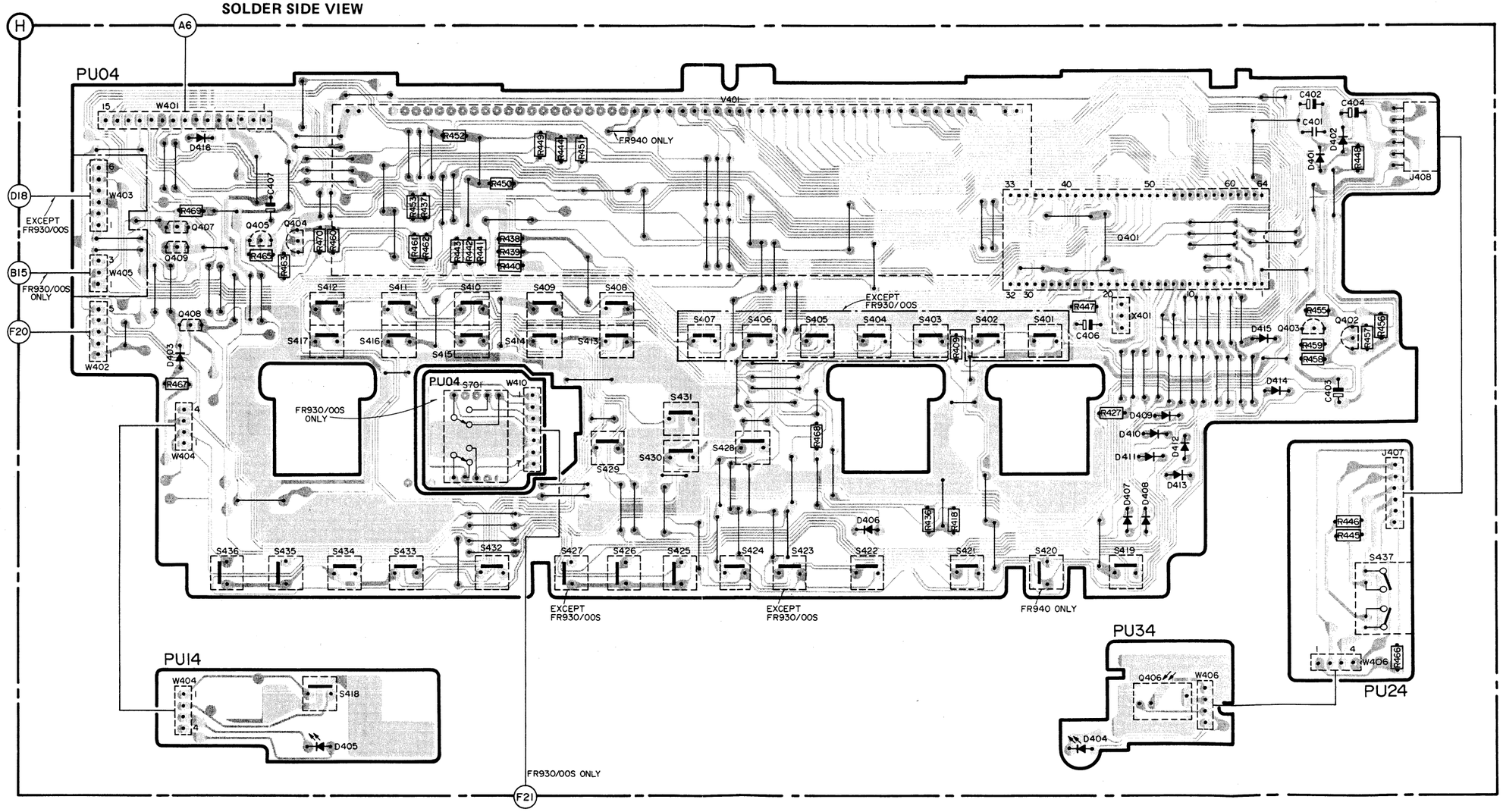
C403 C3	D406 G6	D416 B3	Q404 G10	R436 E10	R446 H12	R458 H7	R469 G9	S409 D14	S419 E10	S429 E11	X401 E4
C404 C3	D407 B14	J407 G11	Q405 H7	R437 G2	R447 D3	R459 H7	R470 G10	S410 D10	S420 E11	S430 E11	
C405 H6	D408 B13	J408 F10	Q406 H13	R438 F2	R448 C3	R460 G9	S401 D10	S411 D11	S421 E11	S431 E12	
C406 D3	D409 B13	J408 G11	Q407 G8	R439 G2	R449 F2	R461 G10	S402 D11	S412 D11	S422 E12	S432 E12	
C407 G10	D410 B12	J503 G1	Q408 G4	R440 F1	R450 F3	R462 G9	S403 D11	S413 D12	S423 E12	S433 E13	
D401 C3	D411 B12	J557 D1	Q408 H8	R441 H5	R451 H5	R463 G8	S404 D12	S414 D12	S424 E13	S434 E13	
D402 C3	D412 B11	J629 H6	Q409 G6	R442 H5	R453 F2	R465 H7	S405 D12	S415 D13	S425 E13	S435 E14	
D403 F12	D413 B11	J633 H4	R409 D10	R443 H8	R455 H7	R466 G12	S406 D13	S416 D13	S426 E14	S436 E14	



R	R467 R469 R465 R463 R470 R460 R453 R437 R461 R462 R452 R438~R444 R449~R451 R468 R436 R418 R409 R447 R427 R455~R459 R445 R446 R448 R466	R
C	C407 C406 C401 ~ C404	C
Q – D	D403 Q407~Q409 D416 Q405 Q404 D405 D406 D404 Q401 Q406 D407~D413 D415 D414 Q403 D401 D402 Q402	Q – D
S – X	S432~S436 S413~S417 S408~S412 S423~S431 S401~S407 S419~S422 X401 S437	S – X

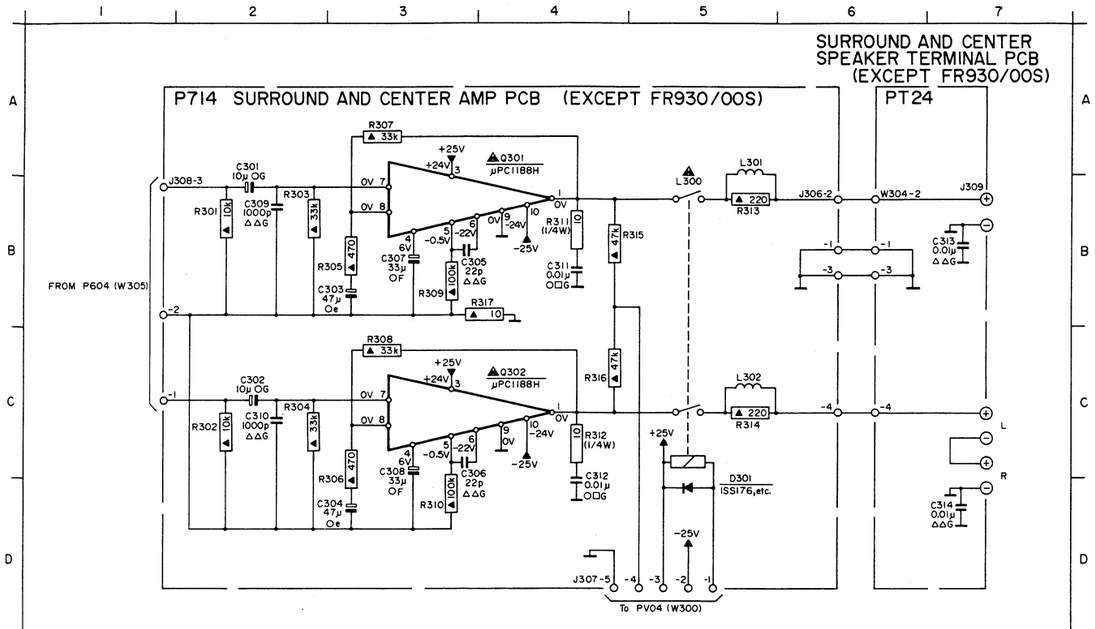
SOLDER SIDE VIEW

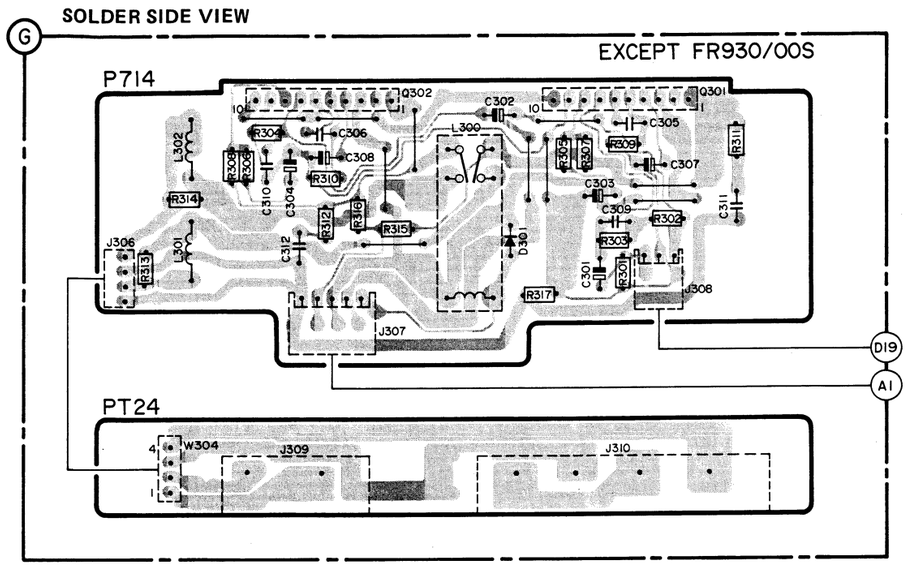


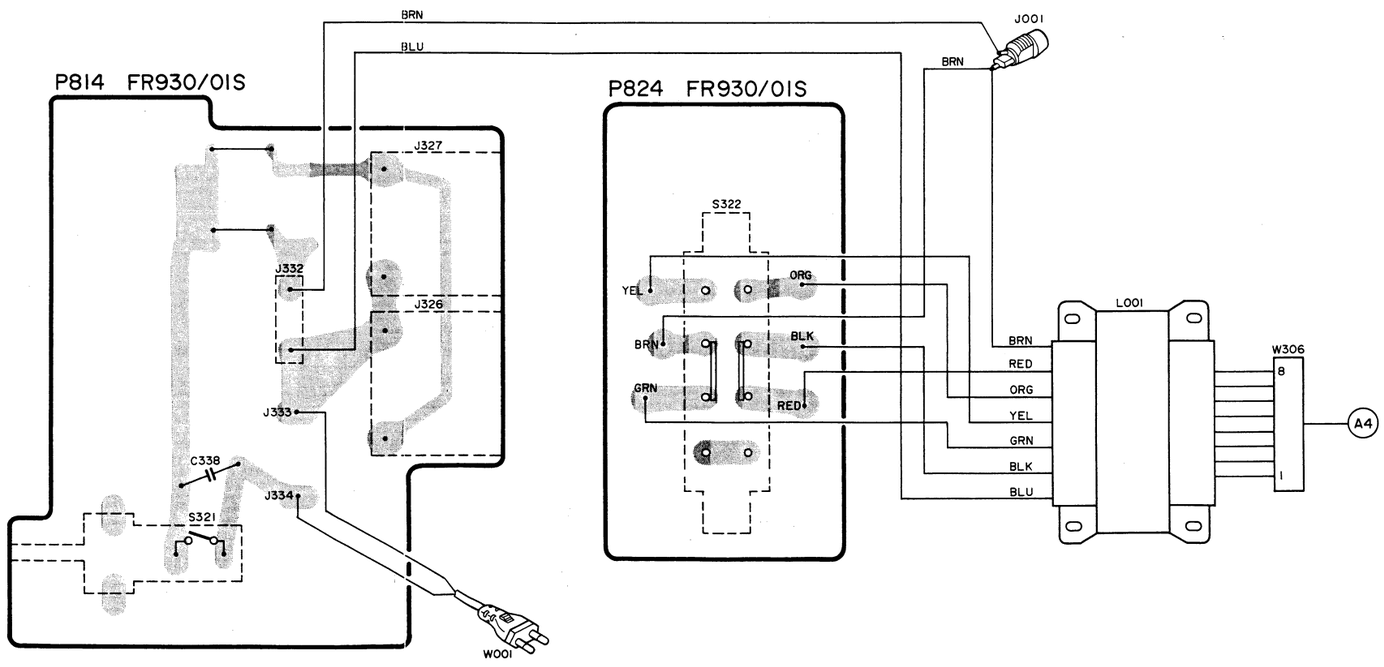
FR930/01S,BK01
FR940/00S/13S,BK01

C301 B2 C311 B4 L301 A5 R307 A3 R317 B4
C302 B3 C312 D4 L302 C5 R308 C3
C303 B3 C313 B7 Q301 A4 R309 B3
C304 D3 C314 D7 Q302 C4 R310 D3
C305 B3 D301 D5 R301 B2 R311 B4
C306 C3 J306 B6 R302 C2 R312 C4
C307 B3 J307 D4 R303 B2 R313 B5
C308 C3 J308 B1 R304 C2 R314 C5
C309 B2 J309 B7 R305 B3 R315 B4
C310 C2 L300 B5 R306 C3 R316 C4

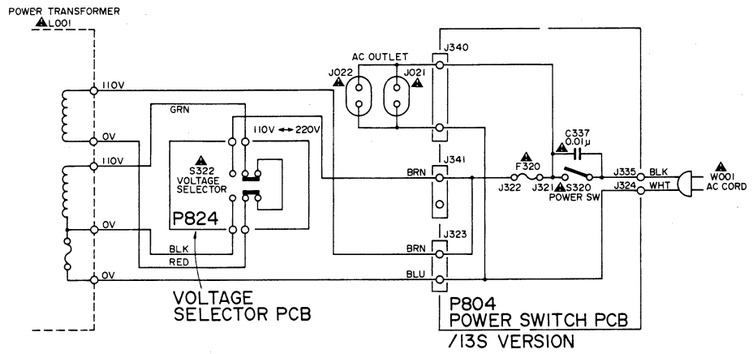
R	R313 R314 R308 R306 R304 R310 R312 R316 R315	R317 R305 R307 R309 R301~R303 R311	R
C	C310 C312 C304 C306 C308	C302 C301 C303 C309 C305 C307 C311	C
Q - D	Q302	D301 Q301	Q - D
L	L302 L301	L300	L

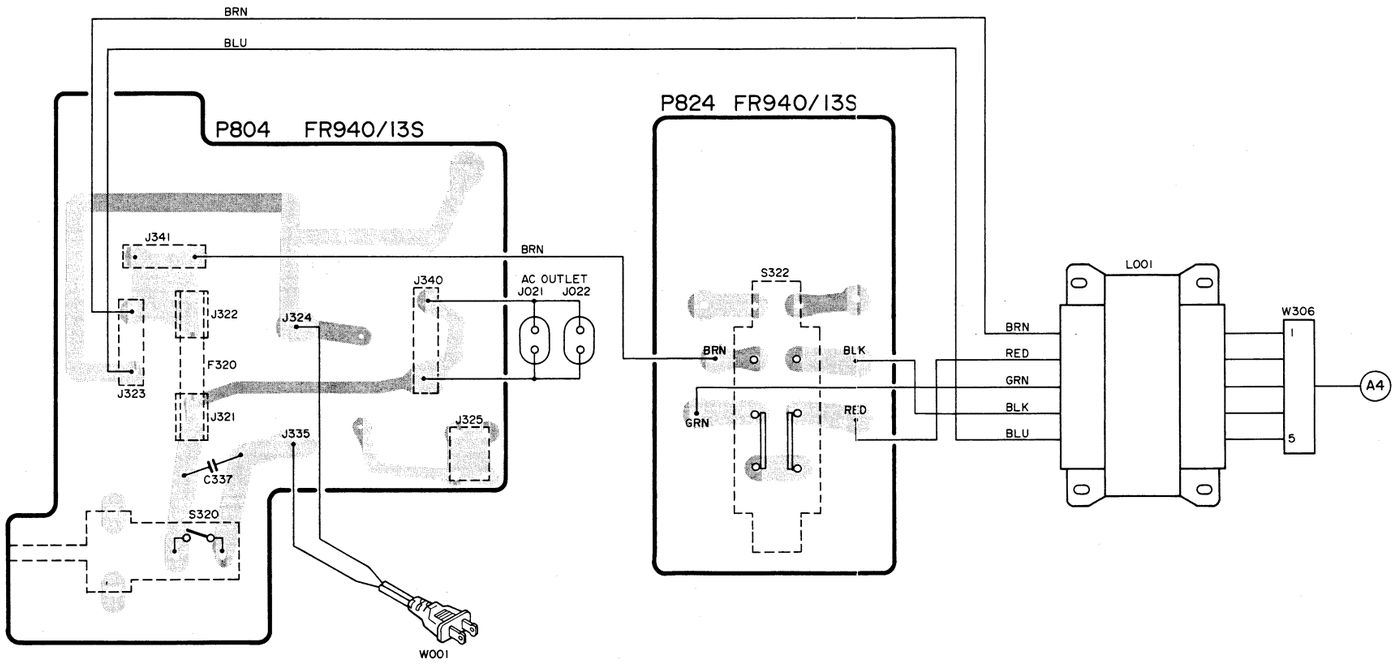






FR940/13S


POWER TRANSFORMER
L001
110V
0V
110V
0V
0V
GRN
110V ↔ 220V
S322
VOLTAGE
SELECTOR
P824
BLK
RED
VOLTAGE
SELECTOR PCB
AC OUTLET
J022
J021
J340
J341
J323
BRN
BRN
BLU
C337
0.01μ
F320
J322
J321
S320
POWER SW
J335
J324
BLK
WHT
W001
AC CORD
P804
POWER SWITCH PCB
/13S VERSION


BRN
BLU
P804 FR940/13S
P824 FR940/13S
J341
BRN
J340
AC OUTLET
J021 J022
J322
J324
F320
J323
J321
J335
C337
S320
W001
S322
BRN
BLK
GRN
RED
L001
BRN
RED
GRN
BLK
BLU
W306
1
5
A4

ELECTRICAL PARTS LIST (FR930)

Q

Q101	4822 130 62294	2SC1809S (P)
Q103	4822 130 60588	DTC114ES
Q104	4822 130 62386	JC557B
Q106	4822 130 61227	DTA114ES
Q107, Q108	4822 130 60588	DTC114ES [/01S]
Q151	4822 130 42121	2SK30A (Y)
Q152	4822 130 62295	JC547B
Q253, Q254	4822 130 60117	2SC3419 (Y)
▲ Q255, Q256	4822 130 63096	2SD2052 (S)
▲ Q257, Q258	4822 130 63095	2SB1361 (S)
Q259, Q260	4822 130 43233	2SC2240 (GR, BL)
Q261	4822 130 42951	2SA970 (GR, BL)
Q402, Q404	4822 130 62386	JC557B
Q403, Q405	4822 130 62295	JC547B
Q407÷Q409	4822 130 61227	DTA114ES
Q503÷Q506	4822 130 61723	DTC323TS
Q571, Q572	4822 130 62295	JC547B
Q592	4822 130 60588	DTC114ES [/00S]
Q628, Q629	4822 130 61227	DTA114ES [/01S,BK01]
Q753, Q754	4822 130 61723	DTC323TS [/01S,BK01]

D

D101	4822 125 50416	SVC342K
D102, D103	4822 130 33305	1SS176 (MA165, 1SS254)
D251, D252	4822 130 80837	HSS81TD
D253, D254	4822 130 33305	1SS176 (MA165, 1SS254)
D301	4822 130 33305	1SS176 (MA165, 1SS254) [/01S, BK01]
▲ D320	4822 130 30984	S5VB20
▲ D321	4822 130 31007	S4VB20 [/01S, BK01]
▲ D321	4822 130 80907	S2VB20 [/00S]
▲ D322, D323	4822 130 80839	S5688G
D324	4822 130 81729	MTZJ33D
D325, D326	4822 130 80839	S5688G
D327	4822 130 80839	S5688G [/00S]
D401÷D403	4822 130 33305	1SS176 (MA165, 1SS254)
D404÷D406	4822 130 82978	LTL4212N-071A
D407÷D416	4822 130 33305	1SS176 (MA165, 1SS254)
D501, D502	4822 130 80318	RD6.8JB2, MTZJ6.8C
D590, D591	4822 130 33305	1SS176 (MA165, 1SS254) [/00S]
D625	4822 130 33305	1SS176 (MA165, 1SS254) [/01S, BK01]
D626	4822 130 80839	S5688G
D627	4822 130 80839	S5688G [/00S]
D651	4822 130 82978	LTL4212N-071A [/01S, BK01]
Q109	4822 126 90002	Posistor ZPA21BB251B1UA

IC

Q102	4822 209 31001	LA1851N
Q105	4822 209 83631	NJM4558DD
Q150	4822 209 73435	LC7218
▲ Q251, Q252	4822 209 70382	μPC1298V
Q262	4822 209 83312	TA7317P
▲ Q301, Q302	4822 209 73727	μPC1188H [/01S, BK01]
▲ Q320	4822 209 70385	L78MR05
▲ Q321	4822 209 61848	NJM7815FA
▲ Q322	4822 209 83828	NJM7915FA
▲ Q323	4822 209 31631	NJM7805FA [/01S,BK01]
Q351	4822 209 73064	NJM2068DD [/01S,BK01]
Q352÷Q355	4822 209 83631	NJM4558DD [/01S,BK01]
Q356	4822 209 72748	LC7821 [/01S,BK01]
Q401	4822 209 31556	TMP47C1670AN H054
Q501, Q502	4822 209 70044	NJM2058D
Q507	4822 209 73064	NJM2068DD
Q508	4822 209 71783	LC7522
Q551	4822 209 72748	LC7821
Q552	4822 209 73731	LC7823 [/00S]
Q570	4822 209 73731	LC7823
Q590	4822 209 72323	TC74HCU04AP [/00S]
Q591	4822 209 61688	TC74HC02AP [/00S]
Q601	4822 209 83631	NJM4558DD
Q625	4822 209 31572	NJM2175L [/01S,BK01]
Q626	4822 209 31573	M50198P [/01S,BK01]
Q627	4822 209 31574	μPD6345C [/01S,BK01]
Q630	4822 209 73287	LB1630 [/01S,BK01]
Q631	4822 209 73287	LB1630 [/00S]
Q701	4822 209 73064	NJM2068DD [/00S]
Q751	4822 209 31575	TC9213P [/01S,BK01]
Q752	4822 209 83631	NJM4558DD [/01S,BK01]

L

L101	4822 157 63084	Ant coil AM
L102	4822 157 52716	OSC coil AM
L103	4822 157 53589	Choke coil 39mH
L104	4822 148 81095	I.F.T. coil AM
L105	4822 148 81269	I.F.T. coil FM
L106, L107	4822 157 70021	MPX coil FM
L108	4822 156 10794	MPX coil [/00S, /01S]
▲ L251	4822 280 70354	Relay, speaker
L252, L253	4822 157 70022	Air coil, speaker
▲ L300	4822 280 70354	Relay, speaker [/01S, BK01]
L301, L302	4822 157 70022	Air coil speaker [/01S, BK01]
L590	4822 148 81268	Pulse transformer [/00S]

R

R103	4822 100 11351	Potm. trimmer 10K
▲ R106, R112	4822 050 21501	Res. 150E 1/4W
R114	4822 100 11352	Potm. trimmer 22K
R119	4822 100 20681	Potm. trimmer 2.2K
R263, R264	4822 100 11386	Potm. trimmer 1K
▲ R271, R272	4822 116 82049	Res. 0.18Ex2 3W
R280, R281	4822 050 22201	Res. 220E 1/4W
▲ R282, R283	4822 053 11109	Res. 10E 2W
▲ R287÷R290	4822 115 90166	Res. fusible 10E 1/4W
▲ R293, R294	4822 053 11681	Res. 680E 2W
▲ R295, R296	4822 050 21501	Res. 150E 1/2W
R311, R312	4822 052 10109	Res. 10E 1/4W [/01S,BK01]
R313, R314	4822 050 22201	Res. 220E 1/4W [/01S,BK01]
▲ R319	4822 115 90166	Res. fusible 10E 1/4W
▲ R320	4822 050 24701	Res. 470E 1/2W
▲ R323	4822 053 11151	Res. 150E 2W [/01S,BK01]
▲ R323	4822 053 11479	Res. 47E 2W [/00S]
▲ R325, R326	4822 116 60313	Res. fusible 10E 1/2W
▲ R327	4822 113 80322	Res. 2.2M 1/2W [/01S,BK01]
▲ R328	4822 116 60313	Res. fusible 10E 1/2W [/01S,BK01]
R519	4822 101 30797	Potm. bass 10K (C)
R520	4822 101 30797	Potm. treble 10K (C)
R531	4822 101 30798	Potm. input bal. 100K (W) [/01S,BK01]
R532	4822 101 30798	Potm. balance 100K (W)
▲ R617, R618	4822 050 21021	Res. 100E 1/4W
R662	4822 101 30799	Potm. master vol 100K [/01S,BK01]
R662	4822 101 30801	Potm. master vol 100K (B)x2 [/00S]
R667	4822 050 21021	Res. 100E 1/4W [/01S,BK01]

C

C101	4822 125 60185	Cap. trimming 20pF
C320, C323	4822 122 30043	Cap. ceramic 0.01μF 500V
C321, C322	4822 124 23346	Cap. elect 8200μF 56V [/01S, BK01]
C321, C322	4822 124 80369	Cap. elect 6800μF 63V [/00S]
C324, C325	4822 124 80244	Cap. elect 4700μF 35V [/01S,BK01]
▲ C337	4822 122 33276	Cap. ceramic 0.01μF 400V [BK01]
▲ C338	4822 122 33276	Cap. ceramic 0.01μF 400V [/00S, /01S]
C402	4822 124 21737	Cap. elect 100μF 6.3V
C403	4822 124 23128	Cap. big elect 0.047F 5.5V
C404, C405	4822 124 21737	Cap. elect 100μF 6.3V
C406	4822 124 41604	Cap. elect 0.1μF 50V
C407	4822 124 41246	Cap. elect 47μF 16V
C503, C504	4822 124 21894	Cap. elect 10μF 16V
C507, C508	4822 124 21898	Cap. elect 0.47μF 50V
C509, C510	4822 124 41246	Cap. elect 47μF 16V
C513, C514	4822 124 41604	Cap. elect 0.1μF 50V
C515, C516	4822 124 21739	Cap. elect 22μF 16V
C517, C518	4822 124 21894	Cap. elect 10μF 16V
C519, C520	4822 124 41243	Cap. elect 2.2μF 50V
C521, C522	4822 124 21895	Cap. elect 0.22μF 50V
C523, C524	4822 124 21736	Cap. elect 1μF 50V
C527, C528	4822 124 21898	Cap. elect 0.47μF 50V
C531÷C534	4822 124 21894	Cap. elect 10μF 16V
C701, C702	4822 124 21894	Cap. elect 10μF 16V [/00S]
C707, C708	4822 124 21739	Cap. elect 22μF 16V [/00S]

S

S101	4822 277 20968	Sean/ De-emphasis [/01S]
S300	4822 276 13289	Speaker
▲ S320	4822 276 13285	Power [BK01]
▲ S321	4822 276 13285	Power [/00S,/01S]
▲ S322	4822 272 10322	Voltage selector [/01S]
S401÷S417	4822 276 13288	Functions [01S,BK01]
S408÷S417	4822 276 13288	Functions [/00S]
S418, S419	4822 276 13213	Functions
S421, S422	4822 276 13213	Functions
S423÷S431	4822 276 13288	Functions [01S,BK01]
S424÷S426	4822 276 13288	Functions [/00S]
S428÷S431	4822 276 13288	Functions [/00S]
S432÷S436	4822 276 13213	Functions
S437	4822 273 10249	Pulse switch
S701	4822 273 10251	Source direct [/00S]

MISCELLANEOUS

A101	4822 210 10397	V.H.F. tuner [BK01]
A101	4822 210 10372	V.H.F. tuner [/00S, /01S]
F101	4822 242 81262	Ceramic filter SFP450F
F102	4822 242 70911	Ceramic filter 10.7MHz [BK01]
F102	4822 242 71135	Ceramic filter 10.7MHz [/00S, /01S]
F103	4822 242 71135	Ceramic filter 10.7MHz
▲ F320	4822 253 30224	Fuse 4.0A 125V [BK01]
▲ F321	4822 253 30416	Fuse T2.5A 250V [/00S]
▲ F322	4822 253 30416	Fuse T2:5A 250V [/00S]
▲ F323	4822 253 30409	Fuse T4.0A 250V [/01S]
▲ F323	4822 253 30224	Fuse 4.0A 125V [BK01]
▲ F324	4822 253 30409	Fuse T4.0A 250V [/01S]
▲ F324	4822 253 30224	Fuse 4.0A 125V [BK01]
J101	4822 264 30255	Terminal, antenna [/00S]
J101	4822 290 81537	Terminal, antenna [/01S, BK01]
J104	4822 157 63605	Terminal, processor IN/OUT [/00S]
J105	4822 264 10111	Short plug [/00S]
J300	4822 266 30323	Terminal, speaker
J309	4822 290 81525	Terminal, speaker 2P [/01S,BK01]
J310	4822 290 81526	Terminal, speaker 4P [/01S,BK01]
▲ J320	4822 267 31286	Jack, AC outlet [BK01]
▲ J326, J327	4822 267 31194	Jack, AC outlet [/00S, /01S]
J551, J552	4822 290 81524	Terminal, RCA pin 8P
J553	4822 265 20542	Terminal, RCA pin 2P
J554	4822 290 81519	Terminal, RCA pin 1P
J570	4822 265 41264	Terminal, RCA pin 3P
J571	4822 265 41263	Terminal, RCA pin 2P
J585	4822 265 20555	Jack, headphone
J592	4822 265 41265	Terminal, RCA pin 3P [/00S]
Q406	4822 130 83197	IR receiver GP1U58XP
V401	4822 130 91145	Display unit
X101	4822 242 81248	Ceramic resonator CSB456F15
X150	4822 242 72333	Crystal 7.2MHz
X401	4822 242 73696	Ceramic resonator 8.00MHz
X625	4822 242 81271	Ceramic resonator 3.27MHz [/01S, BK01]

Q101	4822 130 62294	2SC1809S (P)
Q103	4822 130 60588	DTC114ES
Q104	4822 130 62386	JC557B
Q106	4822 130 61227	DTA114ES
Q151	4822 130 42121	2SK30A (Y)
Q152	4822 130 62295	JC547B
Q253, Q254	4822 130 60117	2SC3419 (Y)
▲ Q255, Q256	4822 130 63121	2SC3281 (O)
▲ Q257, Q258	4822 130 63119	2SA1302 (O)
Q259, Q260	4822 130 43233	2SC2240 (GR, BL)
Q261	4822 130 42951	2SA970 (GR, BL)
Q290	4822 130 61227	DTA114ES
Q291÷Q293	4822 130 62295	JC547B
Q402, Q404	4822 130 62386	JC557B
Q403, Q405	4822 130 62295	JC547B
Q407÷Q409	4822 130 61227	DTA114ES
Q503÷Q506	4822 130 61723	DTC323TS
Q571, Q572	4822 130 62295	JC547B
Q592	4822 130 60588	DTC114ES
Q628, Q629	4822 130 61227	DTA114ES
Q753, Q754	4822 130 61723	DTC323TS

D101	4822 125 50416	SVC342K
D102, D103	4822 130 33305	1SS176 (MA165, 1SS254)
D251, D252	4822 130 80837	HSS81TD
D253, D254	4822 130 33305	1SS176 (MA165, 1SS254)
D291	4822 130 33305	1SS176 (MA165, 1SS254)
D294, D301	4822 130 33305	1SS176 (MA165, 1SS254)
D295	4822 130 42848	PTH9MO4BB222TS2F333 Posistor
D296	4822 130 43564	PTH9MO4BE222TS2F333 Posistor
▲ D320	4822 130.33132	D5FBO2L20
▲ D321	4822 130 31007	S4VB-20
▲ D322, D323	4822 130 80839	S5688G
D324	4822 130 81729	MTZJ33D
D325, D326	4822 130 80839	S5688G
D401÷D403	4822 130 33305	1SS176 (MA165, 1SS254)
D404÷D406	4822 130 82978	LTL4212N-71A
D407÷D416	4822 130 33305	1SS176 (MA165, 1SS254)
D501, D502	4822 130 80318	RD6.8JB2, MTZJ6.8C
D590, D591	4822 130 33305	1SS176 (MA165, 1SS254)
D625	4822 130 33305	1SS176 (MA165, 1SS254)
D626	4822 130 80839	S5688G
D651	4822 130 82978	LTL4212N-071A [/13S, BK01]
Q109	4822 126 90002	Posistor ZPA21BB251B1UA

Q102	4822 209 31001	LA1851N
Q105	4822 209 83631	NJM4558DD
Q150	4822 209 73435	LC7218
▲ Q251, Q252	4822 209 31613	μPC1342V
Q262	4822 209 83312	TA7317P
▲ Q301, Q302	4822 209 73727	μPC1188H
▲ Q320	4822 209 70385	L78MR05
▲ Q321	4822 209 61848	NJM7815FA
▲ Q322	4822 209 83828	NJM7915FA
▲ Q323	4822 209 31631	NJM7805FA
Q351	4822 209 73064	NJM2068DD
Q352÷Q355	4822 209 83631	NJM4558DD
Q356	4822 209 72748	LC7821
Q401	4822 209 31556	TMP47C1670AN H054
Q501, Q502	4822 209 70044	NJM2058D
Q507	4822 209 73064	NJM2068DD
Q508	4822 209 71783	LC7522
Q551	4822 209 72748	LC7821
Q552, Q570	4822 209 73731	LC7823
Q590	4822 209 72323	TC74HCU04AP
Q591	4822 209 61688	TC74HC02AP
Q601	4822 209 83631	NJM4558DD
Q625	4822 209 31572	NJM2175L
Q626	4822 209 31573	M50198P
Q627	4822 209 31574	μPD6345C
Q630	4822 209 73287	LB1630
Q751	4822 209 31575	TC9213P
Q752	4822 209 83631	NJM4558DD

C101	4822 125 60185	Cap. trimming	20pF
C320, C323	4822 122 30043	Cap. ceramic	0.01μF 500V
C321, C322	4822 124 80254	Cap. elect	6800μF 71V
C324, C325	4822 124 80244	Cap. elect	4700μF 35V
▲ C337	4822 122 33276	Cap. ceramic	0.01μF 400V [/13S, BK01]
▲ C338	4822 122 33276	Cap. ceramic	0.01μF 400V [/00S]
C402	4822 124 21737	Cap. elect	100μF 6.3V
C403	4822 124 23128	Cap. big elect	0.047F 5.5V
C404, C405	4822 124 21737	Cap. elect	100μF 6.3V
C406	4822 124 41604	Cap. elect	0.1μF 50V
C407	4822 124 41246	Cap. elect	47μF 16V
C503, C504	4822 124 21894	Cap. elect	10μF 16V
C507, C508	4822 124 21898	Cap. elect	0.47μF 50V
C509, C510	4822 124 41246	Cap. elect	47μF 16V
C513, C514	4822 124 41604	Cap. elect	0.1μF 50V
C515, C516	4822 124 21739	Cap. elect	22μF 16V
C517, C518	4822 124 21894	Cap. elect	10μF 16V
C519, C520	4822 124 41243	Cap. elect	2.2μF 50V
C521, C522	4822 124 21895	Cap. elect	0.22μF 50V
C523, C524	4822 124 21736	Cap. elect	1μF 50V
C527, C528	4822 124 21898	Cap. elect	0.47μF 50V
C531÷C534	4822 124 21894	Cap. elect	10μF 16V

R103	4822 100 11351	Potm. trimmer 10K
▲ R106, R112	4822 050 21501	Res. 150E 1/4W
R114	4822 100 11352	Potm. trimmer 22K
R119	4822 100 20681	Potm. trimmer 2.2K
R263, R264	4822 100 11386	Potm. trimmer 1K
▲ R271, R272	4822 116 82049	Res. 0.18Ex2 3W
R280, R281	4822 050 22201	Res. 220E 1/4W
▲ R282, R283	4822 053 11109	Res. 10E 2W
▲ R287÷R290	4822 115 90166	Res. fusible 10E 1/4W
▲ R293, R294	4822 053 11681	Res. 680E 2W
▲ R295, R296	4822 050 21501	Res. 150E 1/2W
R311, R312	4822 052 10109	Res. 10E 1/4W
R313, R314	4822 050 22201	Res. 220E 1/4W
▲ R319	4822 115 90166	Res. fusible 10E 1/4W
▲ R320	4822 050 24701	Res. 470E 1/2W
▲ R323	4822 053 11151	Res. 150E 2W
▲ R325, R326	4822 116 60313	Res. fusible 10E 1/2W
▲ R327	4822 113 80322	Res. 2.2M 1/2W [BK01]
▲ R328	4822 116 60313	Res. fusible 10E 1/2W
R519	4822 101 30797	Potm. bass 10K (C)
R520	4822 101 30797	Potm. treble 10K (C)
R531	4822 101 30798	Potm. input bal. 100K (W)
R532	4822 101 30798	Potm. balance . 100K (W)
▲ R617, R618	4822 050 21021	Res. 100E 1/4W
R662	4822 101 30799	Potm. master vol 100K
R667	4822 050 21021	Res. 100E 1/4W

L101	4822 157 63084	Ant coil AM
L102	4822 157 52716	OSC coil AM
L103	4822 157 53589	Choke coil 39mH
L104	4822 148 81095	I.F.T. coil AM
L105	4822 148 81269	I.F.T. coil FM
L106, L107	4822 157 70021	MPX coil FM
L108	4822 156 10794	MPX coil FM [/00S]
▲ L251	4822 280 70354	Relay, speaker
L252, L253	4822 157 70022	Air coil, speaker
▲ L300	4822 280 70354	Relay, speaker
L301, L302	4822 157 70022	Air coil, speaker
L590	4822 148 81268	Pulse transformer

S300	4822 276 13289	Speaker
▲ S320	4822 276 13285	Power [/13S, BK01]
▲ S321	4822 276 13285	Power [/00S]
▲ S322	4822 272 10325	Voltage selector [/13S]
S401÷S417	4822 276 13288	Functions
S418÷S422	4822 276 13213	Functions
S423÷S431	4822 276 13288	Functions
S432÷S436	4822 276 13213	Functions
S437	4822 273 10249	Pulse switch

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MISCELLANEOUS		
A101	4822 210 10372	V.H.F. tuner [/00S]
A101	4822 210 10397	V.H.F. tuner [/13S,BK01]
F101	4822 242 81262	Ceramic filter SFP450F
F102	4822 242 71135	Ceramic filter 10.7MHz [/00S]
F102	4822 242 70911	Ceramic filter 10.7MHz [/13S, BK01]
F103	4822 242 71135	Ceramic filter 10.7MHz
▲ F320	4822 253 30411	Fuse 5.0A 125V [BK01]
▲ F320	4822 253 30397	Fuse T5.0A 250V [/13S]
▲ F321	4822 253 30416	Fuse T2.5A 250V [/00S]
▲ F322	4822 253 30416	Fuse T2.5A 250V [/00S]
▲ F323	4822 253 30409	Fuse T4.0A 250V [/00S, /13S]
▲ F323	4822 253 30224	Fuse 4.0A 125V [BK01]
▲ F324	4822 253 30409	Fuse T4.0A 250V [/00S, /13S]
▲ F324	4822 253 30224	Fuse 4.0A 125V [BK01]
J101	4822 264 30255	Terminal, antenna [/00S]
J101	4822 290 81537	Terminal, antenna [/13S, BK01]
J300	4822 266 30323	Terminal, speaker 8P
J309	4822 290 81525	Terminal, speaker 2P
J310	4822 290 81526	Terminal, speaker 4P
▲ J320	4822 267 31286	Jack, AC outlet [BK01]
▲ J326, J327	4822 267 31194	Jack, AC outlet [/00S]
J551, J552	4822 290 81524	Terminal, RCA pin 8P
J553	4822 265 20542	Terminal, RCA pin 2P
J554	4822 290 81519	Terminal, RCA pin 1P
J570	4822 265 41264	Terminal, RCA pin 3P
J571	4822 265 41263	Terminal, RCA pin 2P
J580	4822 265 20555	Jack, headphone
J582	4822 290 81521	Terminal, RCA pin 1P
J583	4822 290 81522	Terminal, RCA pin 1P
J584	4822 290 81523	Terminal, RCA pin 1P
J592	4822 265 41265	Terminal, RCA pin 3P
Q406	4822 130 83197	IR receiver GP1U58XP
V401	4822 130 91145	Display unit
X101	4822 242 81248	Ceramic resonator CSB456F15
X150	4822 242 72333	Crystal 7.2MHz
X401	4822 242 73696	Ceramic resonator 8.00MHz
X625	4822 242 81271	Ceramic resonator 3.27MHz

EXPLODED VIEW AND PARTS LIST (FR930)

001B	4822 426 51565	Front panel [/01S, BK01]
	4822 426 51566	Front panel [/00S]
003B	4822 410 62061	Button, nose[/01S, BK01]
	4822 410 62067	Button, nose [/00S]
004B	4822 410 62062	Button, cursor
005B	4822 410 62063	Button, 10key upper
006B	4822 410 62064	Button, surround [/01S, BK01]
007B	4822 410 62065	Button, muting
008B	4822 410 62066	Button, speaker
009B	4822 413 31708	Knob, selector [/01S, BK01]
	4822 413 41727	Knob, selector [/00S]
010B	4822 413 41733	Knob, volume [/01S, BK01]
	4822 413 41732	Knob, volume [/00S]
011B	4822 532 21449	Rubber ring
012B	4822 381 11349	Lens, pointer [/01S, BK01]
013B	4822 413 41704	Knob, tone/ balance
014B	4822 381 11311	Lens, standby
015B	4822 462 71808	Cap, power knob
016B	4822 381 11347	Lens, IR sensor
017B	4822 381 11311	Lens, auto selector
018B	4822 381 11311	Lens, muting
050B	4822 454 12845	Escutcheon assembly, window [/01S, BK01]
	4822 454 12879	Escutcheon assembly, window [/00S]
103B	4822 410 62069	Button, 10key lower
004G	4822 462 41887	Buffer, leg
005G	4822 462 41888	Leg
022G	4822 404 21245	Link, power
912G	4822 532 60948	Bushing, AC cord
0461	4822 256 91966	Holder, FTD
▲ F001	4822 253 30408	Fuse T2.0A 250V [/01S]
▲ J001	4822 256 30233	Fuse holder [/01S]
J053	4822 290 40297	Terminal, GND
▲ L001	4822 146 21683	Power transformer [/00S]
	4822 146 21696	Power transformer [/01S]
	4822 146 21682	Power transformer [BK01]
		Accessories
001T	4822 736 21472	User manual [/01S]
	4822 736 21471	User manual [BK01]
	4822 736 21474	User manual [/00S]
Z001	4822 218 10468	Remote control unit, RC6640 [/00S]
	4822 218 10469	Remote control unit, RC6640 [/01S, BK01]
Z003	4822 157 70019	AM loop antenna
Z005	4822 303 50055	FM ext. antenna [/00S]
	4822 303 30314	FM ext. antenna [/01S, BK01]
Z006	4822 264 30265	Ant. adaptor [/01S, BK01]
Z007	4822 253 30409	Fuse, 4A 250V [/01S]

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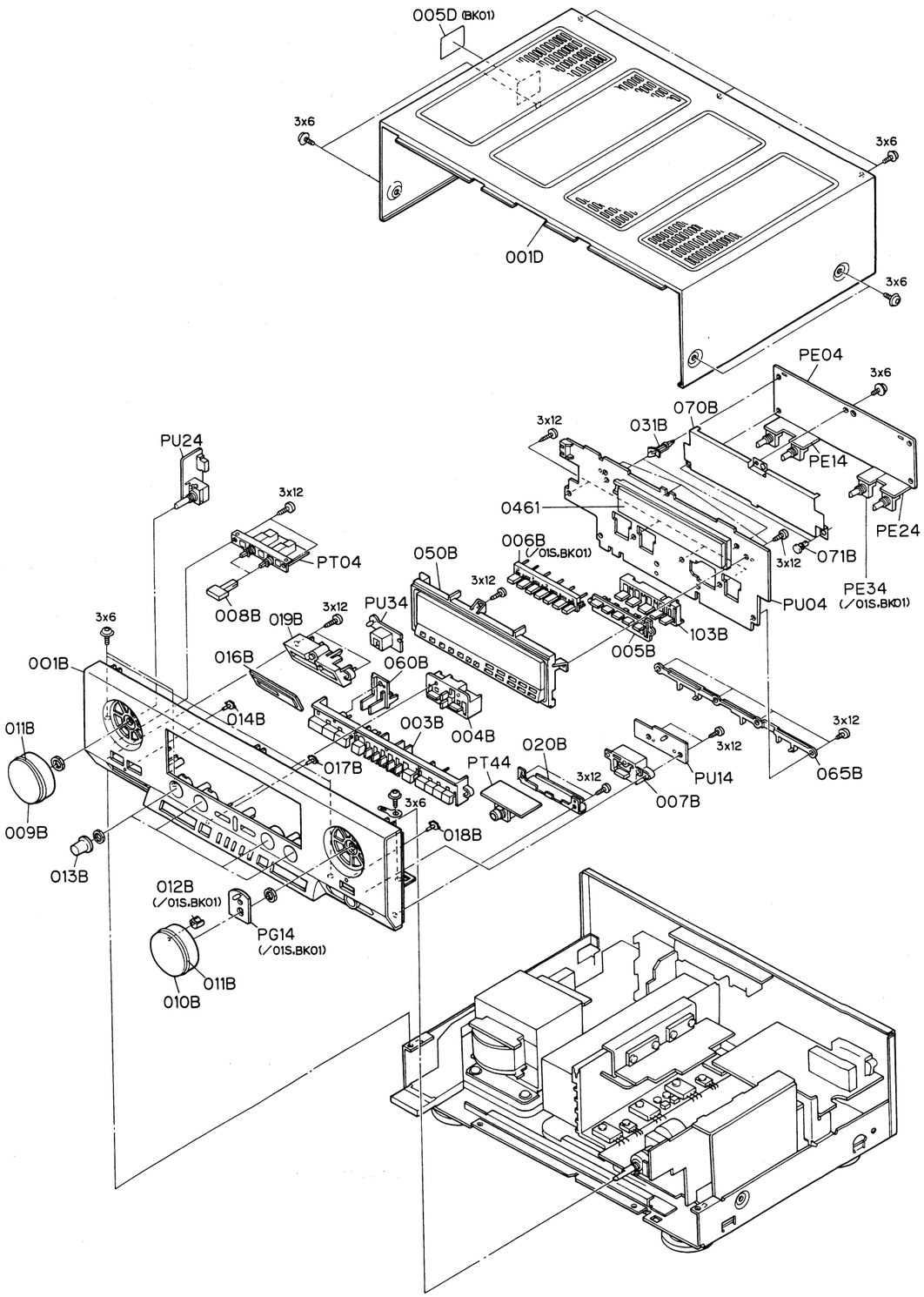
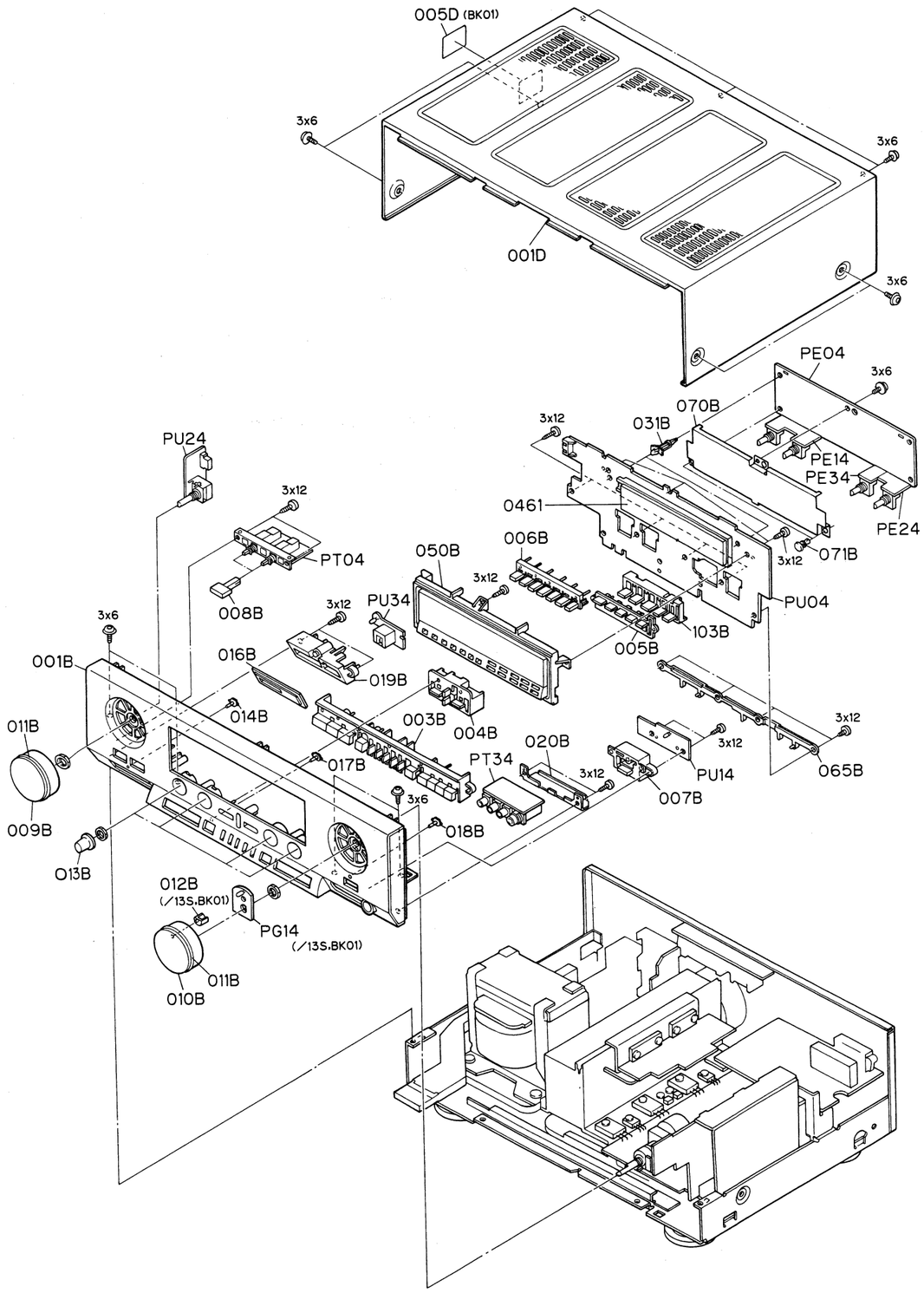
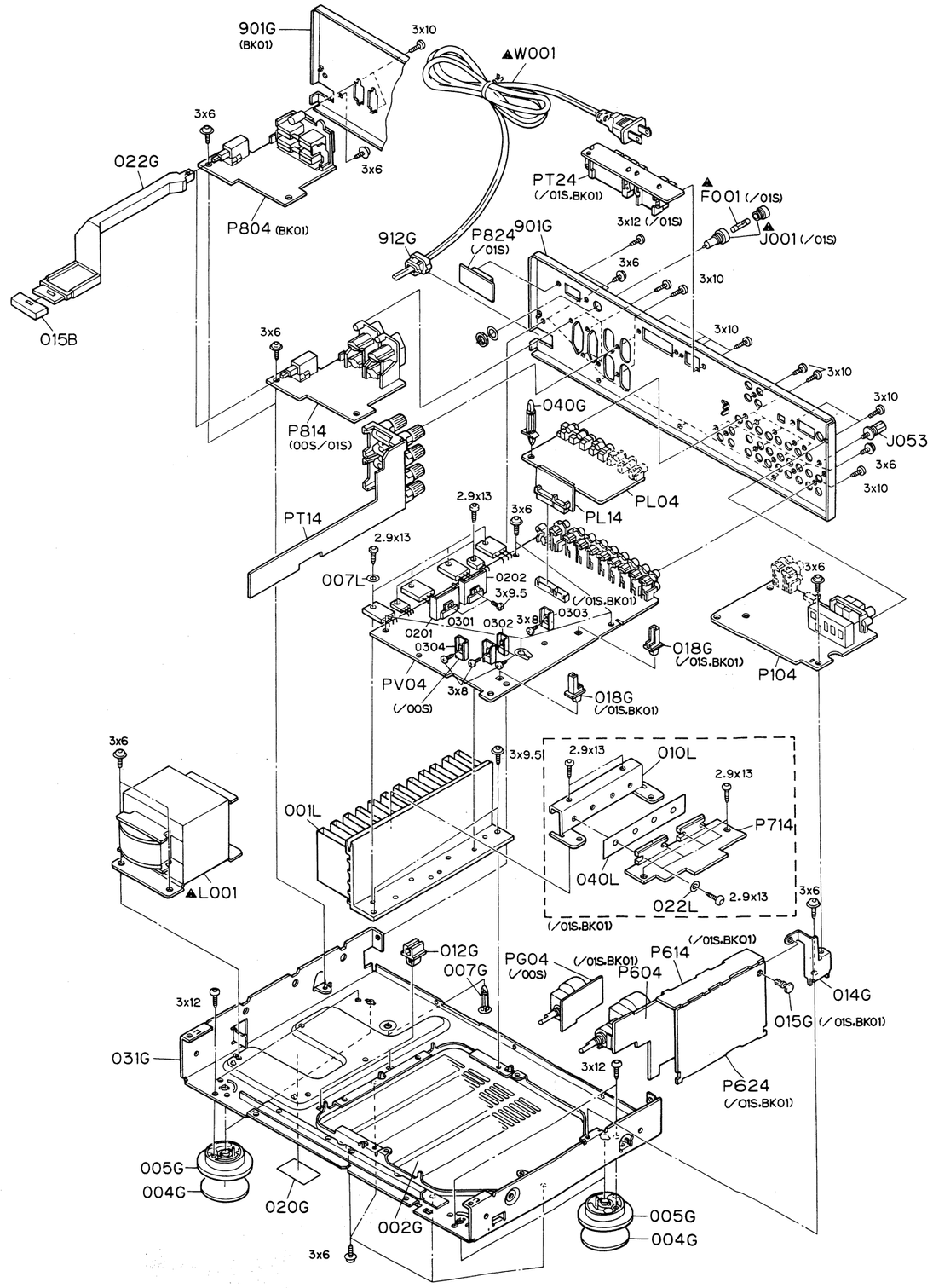


EXPLODED VIEW AND PARTS LIST (FR940)

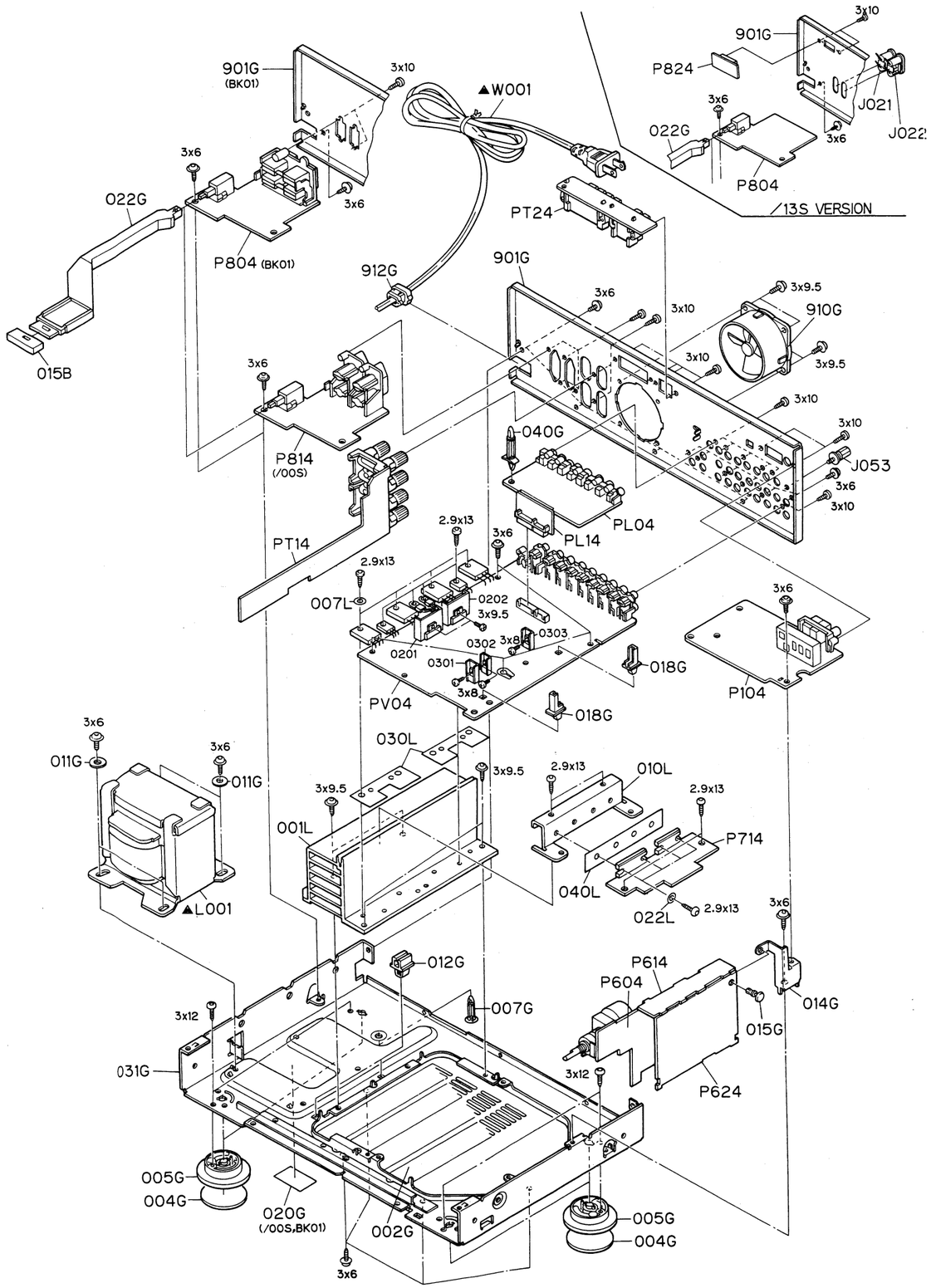


(FR930)



PCS 67 159

(FE940)



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001B	4822 426 51564	Front panel [/00S, BK01]
	4822 426 51599	Front panel [/13S]
003B	4822 410 62061	Button, nose
004B	4822 410 62068	Button, cursor
005B	4822 410 62063	Button, 10key upper
006B	4822 410 62064	Button, surround mode
007B	4822 410 62065	Button, muting
008B	4822 410 62066	Button, speaker
009B	4822 413 41727	Knob, selector [/00S]
	4822 413 31708	Knob, selector [/13S, BK01]
010B	4822 413 41732	Knob, volume [/00S]
	4822 413 41733	Knob, volume [/13S, BK01]
011B	4822 532 21449	Rubber, ring
012B	4822 381 11349	Lens, pointer [/13S, BK01]
013B	4822 413 41704	Knob, tone/balance
014B	4822 381 11311	Lens, standby
015B	4822 462 71808	Cap, power knob
016B	4822 381 11347	Lens, IR sensor
017B	4822 381 11311	Lens, auto selector
018B	4822 381 11311	Lens, muting
050B	4822 454 12845	Escutcheon assembly, window [/00S, BK01]
	4822 454 12877	Escutcheon assembly, window [/13S]
103B	4822 410 62069	Button, 10key lower
004G	4822 462 41887	Buffer, leg
005G	4822 462 41888	Leg
022G	4822 404 21245	Link, power switch
910G	4822 361 10653	Fan
912G	4822 532 60948	Bushing, AC cord
0461	4822 256 91966	Holder, FTD
▲ J021	4822 267 31573	AC outlet [/13S]
▲ J022	4822 267 31573	AC outlet [/13S]
J053	4822 290 40297	Terminal, GND
▲ L001	4822 146 21687	Power transformer [/00S]
	4822 146 21695	Power transformer [/13S]
	4822 146 21685	Power transformer [BK01]

Accessories

001T	4822 736 21473	User manual [/00S]
	4822 736 21577	User manual [/13S]
	4822 736 21477	User manual [BK01]
Z001	4822 218 10469	Remote control unit, RC6624 [/00S, BK01]
	4822 218 10487	Remote control unit, RC6624 [/13S]
Z003	4822 157 70019	AM loop antenna
Z005	4822 303 50055	FM ext. antenna [/00S]
	4822 303 30314	FM ext. antenna [/13S, BK01]
Z006	4822 264 30265	Ant. adaptor [/13S, BK01]